GAZETTEER

OF THE

KARNAL DISTRICT,

1890.

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PUNJAB GOVERNMENT.

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Compiled and Published under the authority of the Punjab Government.

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1892.

PREFACE.

The first edition of the Karnál Gazetteer was written by Mr. Ibbetson, the Editor of the Series. Mr. Ibbetson settled pargana Karnál and tahsíl Pánipat, and the information contained in the Gazetteer for that part of the district was very complete. In preparing a new edition in accordance with the orders contained in Revenue Circular No. 62, my chief task has been to supplement Mr. Ibbetson's work by furnishing the necessary details as regards the part of the district, pargana Indri and tahsil Kaithal, which I settled myself. The publication of the work has been delayed by the pressure of other duties.

J. M. DOUIE.

April 1892.

Table No. I, showing LEADING STATISTICS.

1	2	3	4	5
DETAILS.	DISTRICT.	DETAIL OF TAHSILS.		
		Karnál.	Pánipat.	Kaithal.
Total square miles (1881)	2,396	832	458	1,106
Cultivated square miles (1878)	1,062	378	284	400
Culturable square miles (1878)	892	273	81	538
Irrigated square miles (1878)	389	108	197	84
Average square miles under crops (1877 to 1881)	914	318	229	367
Annual rainfall in inches (1866 to 1882)	28·4	28·4	24·7	19·2
Number of inhabited towns and villages (1881)	863	359	166	338
Total population (1881)	622,621	231,094	186,793	204,734
Rural population (1881)	544,293	203,236	161,771	179,286
Urban population (1881)	78,328	27,858	25,022	25,448
Total population per square mile (1881)	260	278	408	185
Rural population per square mile (1881)	227	245	353	162
Hindus (1881)	453,662	161,577	137,803	154,282
Sikhs (1881)	8,036	2,594	213	5,229
Jains (1881)	4,655	1,129	2,858	668
Musalmans (1881)	156,183	65,747	45,908	44,528
Average annual Land Revenue (1877 to 1881)*	630,101	177,983	306,099	146,019
Average annual gross revenue (1877 to 1881)†	760,112	...	...	...

* Fixed, fluctuating, and miscellaneous. † Land, Tribute, Local rates, Excise, and Stamps.

NOTE.—The area of the tract now included in Kaithal is 1289 square miles. Its population in 1881 was 227,332. The total area and population

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CHAPTER I.

THE DISTRICT.

SECTION A.—DESCRIPTIVE.

Chapter I, A.

Descriptive.

General description

1. Karnal, one of the six districts of the Dehli Division, lies between north latitude 29°9′ and 30°11′, and east longitude 76°13′ and 77°16′. It consists of a tract of plain country of somewhat irregular shape, lying on the right bank of the Jamna, including a portion of the valley of that river, and stretching away westwards across the Sarusti and Ghagar into the Eastern Plains of the Panjab. It may be roughly compared to a square, with its south-western corner cut off as belonging to the Native State of Jindh, and with the addition of a broad projection running up from its north-western corner northwards towards Patiala. It also includes 30 outlying villages scattered about Patiala territory. Its average length and breadth are 54 and 50 miles; its greatest dimension measured along the diagonal from Rattakhera Lukman on the Ghagar to Rakasahra on the Jamna is 80 miles. It is bounded on the north by the Patiala State and the Ambala district, on the east by the river Jamna, which separates it from the Saharanpur, Muzaffarnagar, and Meerut districts of the North-Western Provinces, on the south by the district of Dehli, and on the west by the Rohtak district and the Native States of Jindh and Patiala. It is divided into three *tahsils*, of which that of Panipat includes the southern, that of Karnal the central and north-eastern, and that of Kaithal the western and north-western portions of the district.

2. Some leading statistics regarding the district and the several *tahsils* into which it is divided are given in Table No. I. on the opposite page. The district contains three towns of more than 10,000 souls as follows :—

Panipat	25,022
Karnal	23,133
Kaithal	14,754

The administrative head-quarters are at Karnal, situated in the eastern edge of the district, 5 miles from the river, and upon the Grand Trunk Road 47 miles from Ambala and 73 from Dehli. Karnal stands 18th in order of area and 12th in order of population among the 31 districts of the Province, comprising 2·4 per cent. of the total area, 3·4 per cent. of the total population, and 3·2 per cent. of the urban population of British territory.

Physical conformation.

3. The latitude, longitude and height in feet above the sea of the principal places in the district are shown in the margin.

Town.	N. Latitude.	E. Latitude.	Feet above sea-level.
Karnal ..	29°42′	77° 2′	809
Panipat ..	29°23′	77° 1′	764
Kaithal ..	29°48′	76°26′	760*

* Approximate.

4. The district is everywhere flat, and lies about 780 feet above the sea, the height probab-

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General description.

ly nowhere differing from this figure by more than some 30 feet. There is a very gradual fall from the north-east to the south-west. The distance of the water table from the surface is much affected by the canal and the river. In their vicinity it is seldom greater than 15 feet, and often not more than two or three feet. In the south of Kaithal the depth is as much as 150 feet; on the watershed of the Ghagar and Sarusti and also between the canal and Chautang the depth is from 25 to 35 feet. In the outlying villages near Patiala it is about 20 feet. There is no real clay, the soil varying from stiff loam to pure sand. The stiffest loam is found in the hollows and drainage lines, where the action of the water has washed out the sandy particles. It is sometimes known as *dakar* and is differentiated by the clods not crumbling in the hand. The sandiest soil is found in the riverain tract, chiefly in patches lying in the beds of old river channels, and in the Powadh tract to the north of the Ghagar, where sand hills blown up by the wind are not uncommon. Sandy land is called *bhuda* in the Khadir and *tibbi* in the Powadh. Intermediate soils are classed as *rausli,* and vary in quality between the two extremes. Another common division is into *magra* and *dahr*. The former is the higher land where rain does not lie and the soil is not excessively stiff; the latter the depressions in which rice is grown, and where the soil is very hard.

The Khadir.

5. The tract is divided into two parts by the great backbone of Northern India, which separates the water system of the Indian Ocean from that of the Bay of Bengal. This watershed runs north and south at a distance of from six to twelve miles from the river, and is almost imperceptible to the eye. It runs close under the city of Karnal and thence follows the line of the most eastern of the new canal Rajbahas (No. IV). To the east of, and generally within a mile or two of the watershed, lies the bank which marks the western limit of the excursion of the Jamna. All to the east of this bank is known as the Khadir, and is lowlying riverain tract, with light soil and water close to the surface, and largely in the hands of industrious cultivators. It is bounded to the east by the broad sandy bed in which the river runs; and the Jamna has swept over the whole of it within comparatively recent times. The drop at the bank is often ten or twelve feet; and the land immediately below the bank is usually somewhat lower than that at the river edge. The general slope southward is about one-and-a-half feet per mile. There is little heavy jangal except on the upper portions of the river where the banks are fringed with *jhau*; but date-palms and mango groves abound, other trees are scattered about profusely, and the luxuriant cultivation and the frequent wells make the Khadir perhaps the prettiest part of the district.

The Bangar.

6. To the south of Karnal the land lying to the west of the Khadir is called the Bangar. But it is divided into two parts by a well-marked drop which runs from near Karnal in

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Descriptive.

The Bangar.

the north-east to the south-west corner of the district, and is defined almost exactly by the Hansi road, which runs along its crest, and the old Rohtak branch canal which flows below it. This drop and the Khadir bank, already referred to, meet a little above the town of Karnal, and it is the triangular tract that lies between them that is more especially known as the Bangar proper, in contradistinction to the Nardak or high tract beyond the drop.* It is watered by the Western Jamna Canal almost throughout its area. The soil, where not rendered barren by salts or swamp, is stiff and fertile, and it is in the hands of industrious agricultural castes. The general slope is about one-and-a-half feet per mile southwards, and one foot per mile westwards, the slope decreasing as you go south. Where the Bangar, Nardak, and Khadir meet near Karnal, the Nardak drop splits up into several steps which lead imperceptibly from the Nardak to the Khadir, so that the Nardak and the Khadir may be said to meet near Karnal. Mango groves are not uncommon, but other trees are thinly scattered about. As the neighbours say, land is so scarce and valuable that the very ridges between the fields are set up on edge; and the Bangar tract is for the most part a sheet of cultivation, interspersed with great swamps and large barren plains covered with saline efflorescence. The Indri pargana, which lies to the north of Karnal, is divided into Khadir, Bangar, and Nardak. The Bangar is the tract between the canal and Chautang where well cultivation is largely practised and the soil is better than in the Nardak beyond the Chautang.

The Nardak and Kaithal Bangar.

7. To the west of the Chautang and of the drop, described in the last paragraph, lies the Nardak, another name for the Kurukshetra or battle-field of the Pandavas and Kauravas of the Mahabharata, which lay on this great plain. It consists of a high table-land which runs away with ever-increasing aridity towards the prairies of Hariana which are locally known as the Bagar. Its limits may be defined by a line drawn from Thanesar to Tik, thence to Safidon in Jindh, thence to Karnal, and from Karnal round again to Thanesar. To the west of the Nardak proper, but forming part of the same great table-land is the Kaithal Bangar, including some 90 villages of the Kaithal and Kuthana parganas. The soil of the Kaithal Bangar is usually a strong loam, but it is lighter on the whole than that of the Nardak. But the tribal distinction is more important. The land-owners are mostly Jats in the Bangar and Rajputs in the Nardak, the larger areas of waste which the Rajput keep up are very rarely found in the Bangar, and notwithstanding its untractable soil and the fact that irrigation is rarely possible two-thirds of the culturable area is under tillage. The Nardak proper is a high arid tract with water at great

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* *Bangar* is locally used, with a purely relative meaning, for higher and more arid land. Thus a village in the Khadir will call a high-lying portion of its area its Bangar.

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Nardak and Kaithal Bangar.

depths, having about $\frac{1}{3}$rd of its area cultivated and little irrigation. It is largely occupied by cattle grazing Rajputs, but there is an admixture of industrious Rors. In the north of the Nardak or the part of it which is included in the Indri and Pehowa parganas, Rors form the most important element in the population, and, partly on this account and partly because the water level is not there too deep to prevent hardworking husbandmen from using wells, cultivation is more largely extended than in the Karnal and Kaithal Nardak. The Nardak is conspicuously a grazing country consisting of high open plains covered with Jal, Jand, and Kair and affording excellent pasturage in years of good rainfall. Dhak is abundant in parts, especially in drainage lines. The large trees are almost entirely of the fig tribe. The uniformity of the grassy glades is broken by cultivation and by local hollows (Dabar) fringed with dhak and pipal, in which water collects and produces a dense growth of coarse grasses. Only a few estates in the south of the Nardak and Kaithal Bangar are at present irrigated from the Hansi branch of the western Jamna Canal, but the projected Sirsa Canal and Rajbaha No. I. from the main Canal will protect a large part of this tract from the droughts which have made its cultivation so insecure.

The Naili.

8. The unhealthy country in the north of the Kaithal tahsil inundated by the capricious floods of the Sarusti, Umla, and Ghagar is known as the Naili.

The Naili of the Umla and Ghagar is chiefly owned by Jats, and the Sarusti Naili by Rajputs. But though the former has a better agricultural population its natural advantages are less, and, owing to disease and over-assessment, the condition of the population has been a very miserable one. In the Umla villages, nearly the whole of the flooded land consists of hard dahr, in which coarse rice is the principal, and often the only crop. The grazing is miserably poor. In the Ghagar Naili, the flooded land is partly dahr and partly stiff loam. Owing to the extreme uncertainty of the floods, cultivation is rough and intermittent, and the troublesome dab grass is very imperfectly cleared out. The floods of the Sarusti are most capricious, but not so utterly uncertain as those of the other two streams. There are two recognized soils in the Sarusti villages, Daban and Kat. Daban is flat lowlying land which yields rice followed by a poor crop of gram in a good year. The rice is very liable to be drowned. *kat* lies higher and consists of a stiff loam which in its natural state is covered with dhak and dab jangal mixed with scattered pipals. As a rule the kat does not yield autumn crops and the tillage for the Rabi is perforce rough, for the land can only be ploughed at all immediately after a heavy flood. If once the surface dries, nothing can be done with it. If the *kat* is well flooded at the close of the summer rains and the winter rains do not fail, it yields excellent crops of gram,

The Naili.

jauchana, and even wheat. There is much more *kat* than *daban* in the Sarusti villages, and two-thirds of the crops belong to the spring harvest. There is abundant coarse dab and panni grazing, and in the worst season grass of a sort is to be got.

The Andarwar and Powadh.

9. A small upland tract between the Sarusti valley and the Ghagar is called the Andarwar. The soil is similar to that in the Bangar, but well-irrigation is largely practised. The uncultivated land is of the poorest quality and yields little grass. To the north of the Ghagar is the Powadh with a light loam soil and many wells.

The Jamna.

10. The Jamna meets the district at Chauganwa, and thence forms its eastern boundary for 73 miles till it passes on to the Dehli district. Its bed varies from half-a-mile to a mile in width, of which the cold weather stream only occupies a few hundred yards. The bed is, of course, sand throughout, and the subsiding floods leave sand banks which change annually. The banks vary immensely in character. Where the river has at one time swept over the spot where the bank now stands the edge is low and sandy; where, on the other hand, the stream has gone round the piece of land which now forms the bank, the latter is perpendicular and often 20 to 30 feet high. In the southern portion of its course the banks are for the most part high and well-defined. Generally speaking, the shelving banks are cultivated; they yield, however, a minimum of produce. The higher banks are fringed with dense *jhau* jungle on the upper portion of the stream. But from Panipat downwards they are cultivated up to the very edge; and their fall often means ruin to individual land-owners. The Jamna is by no means so capricious in its course as are the Panjab rivers. The present tendency of the river is very slightly to the eastwards; and it has, within the last few years, changed its channel just below Karnal, so that eight villages formerly lying to the east of it are now included in the Karnal district. Its present action is almost wholly for the bad. Its floods deposit sand for the most part; and the thin skin of loam that sometimes covers it requires a long course of self-sown *jhau* before it is worth cultivating.

Minor drainage lines.

11. The Khadir, especially in the northern part, is much cut up by old river channels (*khala*), and when the Jamna is in flood, the water passes down these channels into the lower land and does much harm by flooding the fields. The largest of these channels runs almost directly under the Khadir bank, and is known as the Burhi Nadi, or Ganda Nala. It receives the drainage of the Bangar east of the watershed, and often swamps the country round. The Puran is an old bed of the Jamna which leaves the present river at Rindawali and flows S.-W. passing through Kunjpura. Below Chhapra it runs due S. and finally rejoins the Jamna. The Buddhakhera Canal escape meets the Puran at Chhapra and the villages

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Minor drainage lines.

below the junction have deteriorated very much from overflooding. At the date of the battle of Panipat (1761 A.D.) the Puran was the main bed of the Jamna. In the Bangar the principal drainage is that running under the Nardak drop and occupied by the old canal, and, in its lower course, by the Rohtak branch. Minor local drainages intersect the area between this and the watershed, and empty into this main drainage; but they are very broad and shallow, and are often only perceptible by their effect upon the cultivation. The Rakshi has its origin in the north of the Jagadhri Tahsil of Ambala. Before it reaches the border of Karnal, most of the water is diverted into the Chautang, and in Karnal the Rakshi is now a very insignificant stream whose bed has in many places almost entirely disappeared. The Nai Nadi which runs through Tiraori in the Indri pargana and which can be traced through the Nardak as far as Salwan in the S.-E. of Kaithal is probably the old bed of the Rakshi. But most of the water that reaches it is now derived from a channel which leaves the Chautang at Nilokheri and joins the old Rakshi at Narana.

The Chautang.*

12. The Chautang is formed by the junctions of two sandy torrents which rise in or near the hills and unite at Balchhapar in the Jagadhri tahsil of Ambala. After crossing the eastern part of the Ambala district it enters Karnal at Jhinwarheri. But higher up its water has been diverted into the Sarusti. On the other hand the Rakshi has been turned into the Chautang a few miles beyond the Karnal border. Its course is south and south-west. At first it skirts the edge of the Bangar and Nardak, but lower down it runs through the heart of the Nardak, and is finally taken up by the Hansi Canal which occupies its lower bed all the way to Hansi and Hissar. For the first few miles after it crosses the Karnal border, it flows in a broad and shallow sandy bed, but its channel soon assumes the canal-like appearance characteristic of hill streams which have dropped all their silt. The straightness of part of its bed and the fact that in Karnal it has practically no catchment basin, and at first runs nearly along the crest of the watershed which divides the Bangar and Nardak, give some colour to the tradition that it is an artificial channel and formed part of the old imperial Canal system. In the Nardak its banks are generally fringed with dense jangal in which a leopard was shot in 1871. In Kaithal the course of the Chautang is often only marked by a slight depression on the surface of the country, but doubtless it was once an important stream, for Mr. Douie found near its banks in Thal an old well re-excavated, in which the water level is now 150 feet, but the old masonry cylinder only went down to a depth of 50 or 60 feet.

* This stream is identified by St. Martin with the ancient Drishadvati. Manu makes the Kurukshetra lie outside the Sarusti and Drishadvati Doah, while the Mahabharata places it between the two rivers. The Sarusti is very commonly identified with the Ghagar; and by others including General Cunningham, with the Rakshi.

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Umla and Ghagar.

13. The north-west portion of the district is traversed by the Ghagar and its tributaries, the chief of which are the Umla and the Sarusti. In the Ambala district the Umla has a wide sandy channel, and deposits fertilizing silt. By the time it reaches the Kaithal border it has dropped nearly the whole of its silt, and its waters find their way along various old channels and finally join the Ghagar near Bhagal. The Ghagar flows west and south-west near the northern border of the Kaithal tahsil to Rattakhera Lukman where it is joined by the Patiala Nadi. Below this point it flows south on or near the boundary of Kaithal, which it re-enters at Urlana. A mile or two lower down it leaves the district finally, and soon after is joined by the Phara branch of the Sarusti. At Bhagal, the Ghagar is very wide and deep, and rarely overflows its banks, but further west the channel is not quite so large, and in favorable years a considerable number of villages is flooded. The inundations are utterly precarious. The Ghagar has two important tributaries in Kaithal, the Untsarwali and Patiala Nadis. The former has two branches, one running to Kuhram in Patiala, and the other to Arnauli in Kaithal, and thence through the north-east corner of the Naili, till it joins the Ghagar at Dhandawata. The Patiala nadi takes its name from the fact that it passes close to the town of Patiala. Thence it flows south through the Powadh tract till it joins the Ghagar. A channel known as the Puran, or old Ghagar, leaves the present stream at Dhandawata, and runs south-west to Gula, where it splits into two branches, one going west and the other south-west, and both ultimately rejoining the Ghagar. Its bed is much silted up, and it is difficult to believe that the Ghagar once flowed in it. But there is no doubt of the fact, for we know from history that Timur's army in 1398 or 1399 crossed the Ghagar by the curious old stone bridge at Gula (Elliot's Indian Historians, Vol. III, page 430). All accounts show that 50 years ago the Ghagar was much smaller and shallower, and therefore more easily controlled than it is now. A band was put up by the Sikhs every year at Tatiana, which must have done much to secure the proper flooding of the villages depending on the Puran, which are now in a very depressed state. The work of deepening the first five miles of the Puran has now been carried out, and this will probably do a good deal to help the Ghagar Naili, a wretched tract which fluctuates between drought and drowning. There is a ferry over Ghagar at Tatiana, but boats are only required for a few months in the year.

The Sarusti.

14. The Sarusti, the most sacred river in Northern India after the Ganges, does not rise in the hills, but begins in a large depression in the north of the Mustafabad pargana of Jagadhri. For the first 20 miles of its course, it is utterly insignificant, its channel being frequently only marked by a shallow depression on the surface of the ground, and being often lost entirely. Like the Brahmans who trade on its sanctity, it lives on the

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The Sarusti.

contributions of its neighbours. It is only after the Chautang joins it at Bhaini that it acquires a continuous channel, and is worthy of being called a stream. The Choya, the Betan, and the Linda, which are probably old channels of the Markanda, join, and the united stream, known as the Linda, falls into the Sarusti near the border of the Karnal district. A few miles lower down at Urnai, the Markanda pours its waters into the Sarusti. The channel cannot contain the heavy Markanda floods, and in the rains the country to the east of Pehowa is converted into a great lake. At Pehowa the channel again becomes well defined, and thence it runs west and south-west to the border of Patiala. Near Pehowa a large dam diverted the water into the Bidkiarwala Khand, a channel originally dug by Bhai Lal Singh to feed the sacred Bidkiar tank at Kaithal. This embankment, which did much damage to the Lower Sarusti villages, was opened a few years ago. At Guldera a branch known as the Baha strikes off to the south-west, and its water is prevented from returning to the main channel by a strong earthen dam, or rather series of dams, erected at Mangna, and forced over the lands of the Naili villages in the neighbourhood of Nawach. The old bed of the Sarusti has become silted up at Guldera, and is 4 or 5 feet above that of the Baha, the size of which has increased of late years. The Baha now takes all the water in small floods. The result is that the seven or eight Baha villages seldom lose their spring harvest, but the people inhabiting them are rapidly dying out from the effects of over-flooding. The Lower Naili villages, on the other hand, do not get their fair share of the water except in good years when every body has as much as, or more than, they want. At Kakewar, a few miles lower down, an important channel takes off to the north-west and fills the great jhil between Papsar and Kakheri. The overflowings of this marsh run down a shallow bed known as the Nai Nadi into another large jhil in the south of Bhuna. This in its turn spills in high floods into the Phara, which will be noticed presently. The main channel continues to run westward and passes through the north of the great Rajput estate of Siwan, for the irrigation of which an important embankment known as the Polar Band, is thrown across the bed of the stream. Near this band there are remains of an old bridge, which Timur must have crossed on his march to Dehli. At Sair, a mile or two lower down, a branch called the Phara breaks away to the north-west, and, after following a winding course for ten or twelve miles, leaves the tahsil at Kharak and soon afterwards falls into the Ghagar. The bed of the Phara at its mouth is not large, but, besides the water taken direct from the Sarusti, it receives the drainage of the whole valley to the north of that river, and, before it quits the tahsil, it is a very deep and wide stream of the same character as the Ghagar itself. It has become much larger since last settlement, and is now in fact the main channel, and in high floods is a violent torrent which it is very difficult to control. Ten or eleven of the Naili villages depend on the Phara, and

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The Sarusti.

its offset, the Baha, but their irrigation is a hard problem, as it is difficult to prevent all the water from escaping uselessly into the Ghagar. Even in ordinary floods the Phara would draw off the whole of the Sarusti water, were it not for a small kacha dam called the "Bawali" that is, "mad," thrown across its mouth. The maintenance of this embankment is of great importance for the irrigation of the estates, about ten in number, on the lower Sarusti, but it is often broken by the force of the floods. Below Sair the Sarusti proper has a very petty channel, and on the Patiala border its bed consists of a depression a foot or two below the surface of the country, and an insignificant embankment at Andhli, known as the Belak band, prevents any water from reaching the Patiala villages in ordinary years. The irrigation on the Sarusti is managed by a system of dams and cuts. Above Siwan there is usually enough water to fill the cuts and flood the lands without blocking up the main stream. But below Siwan, almost every estate has its own little dam thrown across the channel to force water into the cuts. A good deal could be done by local effort to improve the present wasteful system of irrigation and to check the disease consequent on water logging.

Jhils, and swamps.

15. The drainage of the central portion of the Karnal and Panipat tahsils finds its way into the Chautang. To the east of this the country falls towards the Jamna and the old Western Jamna Canal and its minor branches, cutting the lines of drainage at right angles, caused extensive swamping. (See also in Appendix). Thus the old canal was fringed by an almost continuous series of *jhils* of large extent, many of which retained water throughout the year. They were not of sufficient importance to be dignified by the name of lakes, but were of quite sufficient size, very seriously to diminish the capabilities of the villages on whose lands they trenched. The land on the edges was extensively cultivated with rice, and, when the water neither rose so high as to drown the young plant, nor fell so low as to leave it to dry up, heavy crops were obtained. The draining of these swamps has been undertaken in connection with the re-alignment of the old Canal and the ultimate result should be a great improvement in the health of Canal villages. The *jhils* formed by the spill water of the Sarusti have been noticed in the last paragraph.

The Western Jamna Canal.

16. The Western Jamna Canal* enters this district from Ambala about 25 miles north-east of Karnal. It flows below the bank which separates the Khadir and Bangar, as far as Indri, where the new line enters the Bangar. The old Canal ran

* The history of this canal is given at length in the Provincial volume of the Gazetteer series. See also Appendix to the present work.

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The Western Jamna Canal.

through the Khadir to a point four miles below Karnal, where the Grand Trunk Road crosses it by an old Mughal (Badshahi) bridge, and the canal itself entered the Bangar. From this point it held a south-west course for some 18 miles till, near the village of Rer, the Hansi branch struck off westwards *viâ* Safidon, and, occupying the bed of the lower Chautang, flowed on to Hansi and Hissar. From Rer the Dehli Branch ran south to Dehli. About ten miles below Rer, another branch struck off south-westwards towards Rohtak, and a few miles beyond this, just upon the confines of the district, a third branch went to Butana. The main line as now remodelled runs through the Bangar from Indri to Munak crossing the Grand Trunk Road a few miles to the north-west of Karnal. It splits at Munak into two branches, the one running to Dehli and the other to Hansi and Hissar. The important Rohtak and Butana branches take off from the Hansi Branch. All of these branches are used for irrigation in the district, and channels from one or another of them penetrate to all parts of the tract described as the lower Bangar. It would appear that the canal was first taken to Hansi by Firoz Shah in 1355 A. D., and carried on to Hissar next year; and that he took *sharb*, or 10 per cent. on the yield of the irrigation as water rate. But it very quickly ceased to run as a canal; for Timur, in 1398, must have crossed its channel between Panipat and Kaithal; and his very minute itinerary makes no mention of it; while Babar, 200 years later, expressly stated that there were no canals west of the Jamna. In Akbar's time Shahabuddin Ahmad Khan, Governor of Dehli, repaired it. In 1648 Shah Jahan again set it in order, and carried it on to Dehli for his Lal Kila. In 1739 Nadir Shah found it in full flow; but it must have ceased to run almost immediately after this, in the terrible times that followed his invasion; and when we took the country in 1805 it had long silted up almost entirely.

In 1815 its restoration was begun; and the Dehli branch was opened in 1820, since which date its irrigation has steadily extended. An account of the growth of irrigation and of the attendant evils is given in the Appendix while the history of the canal as a whole is fully described in the Provincial volume of the Gazetteer. The effect of the old Western Jamna Canal for good and evil upon the tract which it traversed were great beyond description. While it brought prosperity to the people as a whole, and saved them from the horrors of famine which will presently be described, it, partly by its faulty alignment, but perhaps even more by placing within their reach water which they had not the wisdom or the knowledge to use sparingly, brought ruin to too many. The description given in the Appendix will show how terrible that ruin has been. In 1867 it was decided to re-align the canal and its distributaries; but for various reasons the scheme hung fire. An estimate for remodelling the canal amounting to 72 lakhs was sanctioned in

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Descriptive.

The Western Jamna Canal.

1874. This was increased to 97 lakhs in 1877 and 102 lakhs in 1881. In 1885 a full supply was carried in the new main channel, and by 1886 the head works and most of the works on the canal itself and its principal branches had been finished. The new distributaries and the drainage works are only now being completed. A large distributary (Rajbaha No. I) will be carried through the Karnal and the worst part of the Kaithal Nardak, affording protection to one of the most insecure parts of the district. The first suggestion that a branch of the Western Jamna Canal might be carried to the arid uplands of Kaithal was made by Major (afterwards Sir) Henry Lawrence in 1843, but the project for the construction of a canal from Indri to Sirsa has only recently been taken in hand. The estimate which amounts to 42 lakhs, was sanctioned in 1889. The canal will command an area of 1273 square miles, of which 410 are in Karnal, 355 in Patiala, and 508 in Hissar. 21½ per cent. of the area commanded will be irrigated, and the annual addition to the irrigated area in Karnal may be expected to exceed 55,000 acres, nearly the whole of which will be in the Kaithal uplands. The Sirsa branch is primarily designed for the irrigation of autumn crops, but there will in ordinary years be sufficient water to prepare a considerable area for the rabi, and in years of heavy rainfall, when the demand during the winter months is slack on the present canal, the water, which would otherwise run to waste, will be readily taken in Kaithal and Hissar. The irrigation of rice crops from the Sirsa Branch will be forbidden, and it is to be hoped that this prohibition will be rigorously enforced. It might be extended with advantage to the Nardak Rajbaha No. I from the Main Canal.

The Sirhind Canal.

17. The Choya branch of the Sirhind Canal has been carried through the Powadh, a tract already watered by wells, and where Canal irrigation is likely to do much more harm than good.

Rain-fall, temperature, and climate.

18. The average rain-fall at Karnal is 31 inches, and at Panipat 26, and at Kaithal 17 inches. The fall rapidly decreases as we go southwards, and westwards. The Khadir receives the most plentiful and most frequent rain, many local showers following the course of the river. Table No. III shows in tenths of an inch the total rain-fall registered at each of the rain-gauge stations in the district for each year, from 1866-67 to 1888-89. The fall at head-quarters for the four preceding years is shown in the margin.

Year.	Tenths of an inch.
1862-63 ..	352
1863-64 ..	489
1864-65 ..	251
1865-66 ..	274

The distribution of the rain-fall throughout the year is shown in Tables Nos. IIIA and IIIB, and in more detail in the figures inserted below; while the average temperatures for each month from 1870 to 1873 are shown below in degrees Fahrenheit.

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Rain-fall, temperature, and climate.

Average of the thermometer (Fahrenheit) for the year 1870-73, recorded in the west verandah of the dispensary at Karnal.

Month.	At Sunrise.		At Noon.	
	Maximum.	Minimum.	Maximum	Minimum.
January	54	42	72	61
February	64	50	77	65
March	71	58	83	72
April	80	69	99	89
May	86	70	100	81
June	91	78	104	89
July	85	77	102	87
August	86	62	97	91
September	84	75	96	89
October	76	53	96	77
November	61	45	73	70
December	53	41	74	63

Rain-fall at Karnal in inches.

Year.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	Total.	Total according to returns of Canal Department as registered at Karnal.
1862-63	0·1	...	0·7	16·0	3·8	11·4	0·2	0·1	...	1 9	...	1·0	35·2	...
1863-64	0·8	...	7·4	23·8	10·1	2·6	2·5	0·2	0·2	0·2	0·9	0·2	48·9	...
1864-65	0·9	1·0	0·3	5·4	8·6	2·4	...	...	0·1	0·7	1·2	4·5	25·1	22·8
1865-66	0·5	0·4	1·6	4·7	11·0	4·6	...	...	1·6	2·6	0·4	...	27·4	27·3
1866-67	0·2	...	3·2	6·9	4·7	0·2	0·9	...	...	0·3	0·2	0·5	17·1	16·9
1867-68	0·6	0·9	2·4	7·9	13·1	2·8	...	...	0·6	1·8	1·9	1·0	33·0	32·0
1868-69	0·7	0·1	1·1	4·6	0·1	1·8	...	...	...	3·1	1·1	4·2	16·3	18·1
1869-70	...	...	...	6·9	2·1	5·7	0·6	...	...	...	0·5	3·2	19·0	13·9
1870-71	0·7	0·6	8·2	5·1	6·8	5·0	...	...	...	1·1	4·6	...	32·1	26·0
1871-72	0·4	1·9	9·1	10·1	3·8	1·4	...	...	0·9	4·5	0·1	0·9	33·1	28·6
1872-73	0·2	0·6	8·1	12·7	7·3	2·1	0·1	...	0·9	0·6	0·1	0·3	33·0	31·2
1873-74	...	3·6	1·3	20·7	7·2	6·1	0·2	...	0·5	0·5	0·4	1·8	42·3	36·9
1874-75	...	1·1	7·6	18·7	3·4	7·1	...	...	0·2	0·3	4·7	...	43·1	35·7
1875-76	...	2·4	0·4	7·9	8·6	14·1	...	...	...	...	...	2·0	35·4	27·1
1876-77	0·8	1·2	0·5	9·2	3·5	1·5	1·4	...	...	2·7	3 0	1·1	24·9	23·2
1877-78	0·8	3·0	6·5	2·7	0·8	0·8	2·1	0·4	3·1	1·3	1·6	0·9	24·0	21·2
1878-79	4·6	2·0	0·4	2·8	10·3	1·8	...	...	0·9	...	0·9	0·6	24·3	23·0
1879-80	...	...	3·2	8·5	8·4	1·3	...	...	0·3	0·1	1·8	...	23·6	22·8
1880-81	...	0·5	10 6	12 1	0·7	4·8	...	0·1	0·9	...	0·3	1·9	31·9	31·6
1881-82	0·8	1·4	3·3	8·3	7·0	...	...	...	...	2·7	2·0	...	25·0	27·2
1882-83	1·7	0·7	2·6	7·4	3·1	5·1	...	...	...	2·9	0·1	1·4	25·0	18·8
1883-84	0·1	1·1	3·0	3·6	0·6	7·5	...	0·7	0·4	...	...	0·5	17·5	15·7
1884-85	...	0·5	5·7	3·6	15·6	13·3	1·4	...	0 1	3·4	0·7	0·4	44·7	34·7
1885-86	0·2	2·2	7·5	10·6	9·5	0·1	...	...	1·1	2·1	0·2	1·1	34·6	31·1
1886-87	0·4	2·0	7·1	13·4	4·4	0·2	0 5	...	0·6	0·7	...	...	29·3	24·6
1887-88	...	...	0·8	16·5	14·7	10·7	1·0	...	...	0·6	1·1	0·3	45·7	42·3
1888-89	0·4	1·1	0·8	13·2	5·0	11·4	0·7	0·8	...	1·5	1·8	...	36·7	35·8
Average	0·5	1·1	3·8	9·8	6·5	4·6	0·4	0·1	0·5	1·3	1·1	1·0	30·7	26·7

Disease.

19. Tables Nos. XI, XIA, XIB and XLIV give annual and monthly statistics of births and deaths for the district and for its towns during the last 13 years; while the birth and death rates since 1868, so far as available, will be found in Chapter III, A. for the general population, and in Chapter VI under the heads of the several large towns of the district. Table No. XII shows the number of insane, blind, deaf-mutes, and lepers as ascertained at the census of 1881; while table No. XXXVIII shows the working of the dispensaries since 1877. The Civil Surgeon (Dr. Cookson) thus discusses the disease and sanitation of the district:—

"Malarial fevers, dysentery, and enlargement of the spleen are the most prevalent diseases. Stone in the bladder is not uncommon. Opthalmia, syphilis, and itch are very common in the towns. Scurvy, leprosy, and elephantiasis are very rare; guinea worm and tape worm occasional. In the winter months there is much pleurisy; pneumonia and bronchitis are also prevalent at that season. Asthma is very common, particularly among tradesmen, as the weavers and silver-smiths suffer much. The malarial fevers are the worst in those parts of the district where rice cultivation is carried on, and where there are extensive marshes; thus, the dwellers near the chain of swamps caused by the Western Jamna Canal, and the inhabitants of the tracts every year flooded by the Sarusti, are the greatest sufferers. Something has been done towards improving the large towns, and there is a preceptible fall in the death-rate. In the rest of the district, with the exception of a few dams for retaining drinking water for cattle, I have not seen any works of the improvement of their land done by the owners; and those works, which in civilized countries have been done by successive generations of occupiers for the improvement in value and healthiness of their holdings, all remain to be done. Enlargement of the spleen is, when excessive, usually accompanied by sterility."

The dwellers in the over-flooded tracts have a miserable physique, and it is probably only due to their marriage customs, which favour the introduction of new blood, that they continue to exist.

SECTION B.—GEOLOGY, FAUNA AND FLORA.

Geology.

20. Our knowledge of Indian geology is as yet so general in its nature, and so little has been done in the Panjab in the way of detailed geological investigation, that it is impossible to discuss the local geology of separate districts. But a sketch of the geology of the Province as a whole has been most kindly furnished by Mr. Medlicott, Superintendent of the Geological Survey of India, and is published *in extenso* in the Provincial Volume of the Gazetteer series, and also as a separate pamphlet.

Mineral products.

21. The only mineral products are *kankar* and sal ammoniac; the former is plentifully found in most parts of the district, generally in the nodular form, but occasionally com-

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Geology, Fauna and Flora.

Sal ammoniac.

pacted into blocks. Sal ammoniac is made only in the Kaithal *tahsil*; and the following account of its manufacture is taken for the most part from Mr. Baden-Powell's *Panjab Products*.

22. Sal ammoniac or *naushadar* is, and has been for ages, manufactured by the *kumhars* or potters of the Kaithal tahsil. The villages in which the industry is carried on are as follows:—Manas, Gumthala, Siyana Saiyidan, Barna, and Bindrana. About 2,300 maunds (84 tons) valued at Rs. 34,500 are produced annually. It is sold by the potters to the Mahajans, who export it to Bhiwani and Dehli, to Farrukhabad and Mirzapur in the N.-W. Provinces, and to Ferozepur and Amritsar in the Panjab, and who also sell it after sublimation on an average at Rs. 15 per maund.

The salt is procured by submitting refuse matter to sublimation in closed vessels, in the manner described below, which is similar to the Egyptian method. The process is as follows:—From 15 to 20,000 bricks, made of the dirty clay or mire to be found in certain ponds, are put all round the outside of each brick kiln, which is then heated. When the said bricks are burnt, there exudes and adheres to them the substance from which *naushadar* is made; this matter is produced by the heat of the kiln in the hot weather in three days, in the cold weather in six; in the rains no *naushadar* is made. On the bricks producing this substance, which is of a grayish colour, and resembles the bark that grows on trees, they (the bricks) are removed from the kilns, and, when cool, this crust is removed with an iron scraper or other such instrument. The substance which is thus produced, is of two sorts; the first kind, which is most abundantly produced, and is inferior, is designated the *mitti kham* of *naushadar*, and the yield per kiln containing 15 to 20,000 bricks is about 20 or 30 maunds; it sells at 8 annas per maund; the superior kind, which assumes the appearance of the bark of trees, is called *papri* and the yield of it per kiln containing 15 to 20,000 bricks is not more than 1 or 2 maunds; it is sold at the rate of Rs. 2 or 2¼ per maund. The Mahajans who deal in *naushadar* buy both the sorts above described; but each sort requires special treatment to fit it for the market. The *kham mitti* is first passed through a sieve, and then dissolved in water and allowed to crystallize. This solution is repeated four times to clear away all impurities. When this has been accomplished, the pure substance that remains is boiled for nine hours; by this time the liquid has evaporated, and the resulting salt has the appearance of raw sugar. The *papri* is next taken and pounded finally, after which it is mixed with the first preparation, and the whole is put into a large glass vessel made expressly for the purpose. This vessel is globular, or rather pear-shaped, and has a neck 2½ feet long and 9 inches round, which is closed at the mouth, or, more properly speaking, has no mouth.

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Sal ammoniac.

The composition to be treated is inserted into this vessel by breaking a hole in the body of the vessel, just at the lower end of the neck. This hole is eventually closed by placing a piece of glass over it. The whole vessel (which is thin black coloured glass) is smeared over with seven successive coatings of clay. The whole is then placed in a large earthen pan filled with *naushadar* refuse to keep it firm; the neck of the vessel is further enveloped in a glass cover and plastered with fourteen different coatings of clay to exclude all air, and the whole concern is then placed over a furnace kept lighted for three days and three nights, the cover being removed once every twelve hours in order to insert fresh *naushadar* in the form of raw sugar, to supply the place of what has been sublimed. After three days and three nights the vessel is taken off the furnace, and when cool, the neck of it is broken off, and the rest of the vessel becomes calcined. Ten or twelve sers, according to the size of the neck of the vessel containing the *naushadar*, are then obtained therefrom, of a substance which is designated *phali*. This *phali* is produced by the sublimation of the salt from the body of the vessel and its condensation in the hollow neck. There are two kinds of *phali*; the superior kind is that produced after the *naushadar* had been on the fire for only two days and two nights, in which case the neck is only partially filled with the substance, and the yield is but 5 or 6 seers, and sold at the rate of Rs. 16 per maund; the inferior kind is where the *naushadar* had been on the fire three days and three nights, and the neck of the vessel is completely filled with *phali* when it yields 10 or 12 seers, and the salt is sold at Rs. 13 per maund. That portion of the sublimed *naushadar* which is formed in the mouth and not in the neck of the vessel, is distinctively called *phul*, and not *phali*; it is used in the preparation of *surma*, and is esteemed of great value, selling at Rs. 40 per maund. Each furnace is ordinarily of a size to heat at once seven of these large glass vessels containing *naushadar*. *Naushadar* is used medicinally, and as a freezing mixture with nitre and water; also, in the arts, in tinning and soldering metals and in the operation of forging the compound iron used for making gun barrels by native smiths.

Wild animals: sport.

23. The dense jangals in the northern parts, and the presence of the canal with its attendant *jhils* towards the south, make Karnal an unusually good sporting district. Throughout the jangals of the Kaithal high-lands and bordering on the Jindh territory, black buck, *nilgai*, and *chikara* abound. The first, in fact, is common throughout the district, frequenting the cultivated parts while the crops are sufficiently young to tempt it there, and retreating to the thickets during the interval of seed time and harvest. In Kaithal black buck are specially numerous and do infinite mischief. The *nilgai* and *chikara*, on the other hand, are only found in the densest jangals, notably on the banks of the Chautang, never appearing in the lower and cultivated lands. The hog-deer

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Wild animals: sport.

is not infrequent in swampy parts and along the river; and pigs abound wherever there are *jhils* for them to root in. Grey partridges swarm throughout the jangals, and, in smaller number, in the cultivation, though it is a peculiar fact that they are never found in any Khadir village the area of which is subject to inundation by the river. Black partridges are occasionally found on the banks of the canal and its distributing channels, but they would appear to be dying out here, as in all parts of the Panjab. Jerdon mentions a bag of 75 brace made by one gun near Karnal; nowadays, one seldom flushes more than 9 or 10 in a day's shooting. They are still numerous, however, on the banks of the Ghagar. Hares are general but not numerous; they seem to affect the kair jangal by preference, and are most frequent on the slope from the Nardak to the lower Bangar. Peafowl abound alike in the cultivated and in the jangal villages, and the blue rock pigeon is everywhere extremely common. The small sand grouse is found on the upland fallows. Bush quail are scattered sparsely over the district, and rain quail abound in the *bajra* fields after the crop has been cut: the large grey quail comes, as usual, with the ripening wheat, but the vast area under wheat crops, due to the presence of canal irrigation, diminishes their apparent numbers. But it is in waterfowl that the district stands conspicuous. As soon as the rice crops appear above the water, every *jhil* is crowded with geese and ducks, whose constant quacking, the villagers say, at first renders sleep next to impossible, and the fowl very seriously diminish the outturn of rice. The sealing-wax bill, pintail, mallard, pinkhead, shoveller, teal, and goose teal are the common ducks. The grey goose is to be found in hundreds on the larger marshes, and the black barred goose is to be seen on the river. Full and jack snipe abound in the old rice fields, and 4 or 5 painted snipe are shot yearly; while pelicans, ibises, cranes of many kinds, herons, bitterns, and many sorts of waders cover *jhils*, the *saras* and *kunj* being particularly numerous.

The excellency of the shooting lies in its diversity; you may shoot deer at dawn, partridge and hare in the early morning, duck and snipe during the hotter hours, and pick up a peacock on his way to roost for the night as evening calls you home. Perhaps such enormous bags are not to be made here as in some other districts. But you can hardly go anywhere without finding game moderately plentiful at your tent-door, and often in great variety.

In old times lions and tigers were not uncommon in the tract. The Nardak was a favourite spot for the old Emperors to hunt lions in; and as late as 1827, Mr. Archer says that lions were sometimes seen within 20 miles of Karnal; while tigers were exceedingly numerous in its immediate vicinity, one having carried off a *fakir* at the Imperial bridge where the Grand Trunk Road crosses the old canal, only a few days before his arrival. He describes Karnal as "situated in a large plain but

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Geology, Fauna and Flora.

Wild animals: sport.

recently recovered from the tigers," and Thornton, writing in 1834, says that "a few years ago the jangals were infested by lions, which are now rarely met with except further to the west," and gives several authorities in support of his statement. At present leopards are only occasionally found in the *jhau* jangals along the river, or in Nardak scrub. Wolves are common all over the tract, especially in the Nardak, where goats and sheep abound. Rewards for their destruction on the average amount of Rs. 450 have been paid for the last 15 years, rising as high as Rs. 1,270 in one year. The reward is Rs. 5 per head. Jackals abound, and do an immensity of damage to the crops, especially to maize, which can hardly be grown in some parts, as the jackals "don't leave even the bones." Wild pigs are common, chiefly on the river edge and along the Nardak drainages, and they too do great harm to the crops. The means adopted to protect the crops from wild animals are detailed under the head of agriculture in Chapter IV. But of all animals the common red monkeys which swarm all along the canal are the most destructive, doing almost as much mischief in the houses as in the fields; and there is no way of keeping off these sacred pests.

The swamps which abound in the canal tract swarm with grey geese, duck, snipe, and waders of all sorts in the cold season. *Chirimars* or bird-catchers from the east fix long low nets across the swamps at night, and, frightening the ducks into them, net immense numbers which they sell at Ambala and Simla.

Saurians and reptiles.

24. Crocodiles, all of the blunt nose or true crocodile genus, abound in the river and along the canal and its attendant swamps. They frequently seize and kill young cattle; but no really authenticated case of their having attacked a man seems to be discoverable, though in most villages they tell you that this has actually happened in some other village. The poisonous snakes are the *karait*, which is very common indeed, the cobra *(naja tripudians)* and the Russell's viper, which are less so, and the *echis carinata*, which is not often seen.

Fish.

25. Fish abound in the Jamna, in the swamps along the canal in most of the village ponds. They are caught by *Jhinwars* and by a few Meos, and are largely eaten by the Musalmans of the cities, and by lower castes in the villages.

Trees and shrubs.

26. The table on the next page includes the commoner of the trees and shrubs, and such herbs as call for notice. This is taken from Mr. Ibbetson, who says:—

"For the botanical names I have followed Brandis. But as synonyms, both botanical and vernacular, are numerous, I give the references opposite each tree to the places where full information will be found. B. refers to Brandis' *Forest Flora*, S. to Stewart's *Panjab Plants*, and PP. to Baden-Powell's *Panjab Products*. I men-

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Trees and shrubs.

tion below the principal uses to which the villagers of the tract put each tree; but many other uses are mentioned by the anthorities I quote. I omit officinal uses, which are simply innumerable."

No.	Vernacular name	Botanical name.	References.
1	Ak ...	Calotropis procera ...	B 331 S 144.
2	Amb ...	Mangifera Indica ...	B 125 P P 964, 1187, 1968 S 45.
3	Arni ...	Clerodondron phlomoides	B 363.
4	Bakain ...	Melia azedarach ...	B 68 P P 1165, 1970 S 33.
5	Bar ...	Ficus bengalensis ...	B 412 P P 1486, 1930 S 213.
6	Dhak ...	Butea frondosa ...	B 142 P P 938, 1209, 1587, 1674, 1767, 1790 S 59.
7	Farash ...	Tamarix Articulata ...	B 22 P P 1128, 2081, S 92.
8	Gular ...	Ficus glomerata ...	B 422 P P 1487, 1929 S 212.
9	Hingo ...	Balanites roxburghii ...	B 59 P P 1840 S 44.
10	Hins ...	Capparis sepiaria ...	B 15 S 16.
11	Jal ...	Salvadora oleoides ...	B 316 P P 2061 S 175.
12	Jaman & Jamoa,	Eugenia operculata and jambolana ...	B 233 f P P 2075 S 94.
13	Jand ...	Prosopis spicigera ...	B 169 P P 922, 1248, 1580, 1723, 2010 S 74.
14	Jawasa ...	Alhagi maurorum ...	B 144 P P 1202 S 57.
15	Jhau ...	Tamarix dioica ...	B 21 P P 1126, 1127, 2080 S 91.
16	Jhar ...	Zizyphus nummularia ...	B 88 P P 1178, 2103, S 43.
17	Kaindu ...	Diospyros montana ...	B 296 S 137.
18	Kair ...	Capparis aphylla ...	B 14 P P 978, 1120, 1865, S 15.
19	Kandai (Chipat),	Solanum xanthocarpum,	P P 1373 S 161.
20	Kandai (Khari) or Satyanasi ...	Argemone mexicana ...	P P 1090 S 9.
21	Khajur ...	Phœnix sylvestris ...	B 554 P P 950 1796, 179[illegible] 1993, S 243 ff.
22	Kikar ...	Acacia arabica ...	B 180 P P 1241, 1567, 171[illegible] 1811 S 50.
23	Nagphan ...	Opuntia dillenii ...	B 245 P P p 194, S 101.
24	Nim ...	Melia Indica ...	B 67 P P 1166, 1839 S 22.
25	Nimbar ...	Acacia leucophlœa ...	B 184 P P 1819, S 53.
26	Piazi ...	Asphodelus fistulosus ...	S 234 P P 1520.
27	Pilkhan ...	Ficus infectoria ...	B 414 S 214.
28	Pipal ...	Ficus religiosa ...	B 415 P P 1485 S 213.
29	Rus ...	Echinops (?) ...	
30	Satrawal ...		
31	Sonjna ...	Moringa pterygosperma,	B 129 P P 1173, 1584, 1643 S 19.
32	Shisham ...	Dalbergia sissoo ...	B 149 P P 1219, 1905 S 65.
33	Simbhalu ...	Vitex negundo ...	B 369 P P 1387, 2096 S 166
34	Thohar ...	Euphorbia royleana and neriifolia ...	B 438 f. P P 1473, 1597, 19[illegible] S 194 f.
35	Tut ...	Morus alba ...	B 407 P P 972 1488 S 217 f

The *dhak*.

27. The *dhak* is the commonest and one of the most general useful trees in the tract. It grows gregariously in all low-lyi stiff soil and drainage lines, and is found in great belts of den scrub all over the Nardak high-lands. The soft tough wo stands water well, and is used for well curbs and the lanthor

The *dhak.*

wheels of Persian wheels, and also for bullock yokes. The scoop for lifting water is made of thin slices of it sewn together with leather, and similar slices are used for the hoops of sieves and the like. Fire used at religious ceremonies is always made of this wood. The leaves are used as plates and drinking cups at big dinners; small purchases from the shop are wrapped up in them, and buffaloes eat them. The flowers boiled in water yield an inferior dye for clothes, and when dried and powdered form the *kesu* or red powder used at the Holi festival. Cattle also eat them, and they improve the milk. The roots are sometimes dug up, beaten, soaked in water, beaten again, split up, beaten a third time, washed, and the resulting fibre used for the rope of a Persian wheel and other purposes. But the rope so obtained is very inferior. The fibre is used to coat the rope in a *charas* well. The resin which exudes from the *dhak* is called kino (vern. *kani*). It is collected by a caste called *Heri* who come from the east; and a man following this occupation is called *dhak-pachu*. They pay a small sum for liberty to collect the gum and gash (*pachna*) the trees in rows at distances of a span. Next day the resin which has exuded is scraped off into a small vessel. When dry it is beaten with sticks into small pieces, and winnowed to separate it from the bark and refuse. Its properties are elaborately described by Mr. Baden-Powell. Here it is used chiefly to clear indigo and as a tonic, and never for tanning. The gum is collected from the tree when the thickness of a man's thigh, or about four to five years old, and a good tree will yield two seers, and again a smaller quantity six or seven years later; but the yield varies greatly. A rainy season favours its production, and the best time of year is the cold weather.

Other trees.

28. The *kikar* is the next most useful tree. It grows gregariously all over the tract, save in the lightest soils. It is said to flourish in soil impregnated with sulphates; but plantations of it were tried on the canal in such soil, and failed almost entirely. It grows chiefly in Khadir lands, whether Khadir of a hill stream or of the Jamna. The hard, strong, close wood is used largely for agricultural implements and especially for all bearings, rollers, linings of presses, ploughshares, and the like, which undergo much wear and tear. It makes very fine charcoal. The bark is used largely for tanning, and to control the fermentation in distilling, and the seed pods are greedily eaten by cattle and goats.

The *khajur*, or the wild date-palm, is abundant all over the Khadir. Its soft stems are hollowed out for water channels. The leaves are used for hand fans *(bijna)* and mats. They are also stripped off their stems, split up into strips, and beaten with sticks till the fibre is soft when ropes are made of it, chiefly for the Persian wheel. The process, however, is very laborious, and the rope exceedingly inferior. The fruit, which is poor, is eaten by the villagers. No spirits are distilled from it since the cantonment was moved from Karnal.

Chapter I, B.

Geology, Fauna and Flora.

Other trees.

The *farash* is found throughout the district chiefly in the Khadir. Its wood is used for building purposes, and when young, for charcoal. The galls *(main)* are used for dyeing.

The *pipal, pilkhan, gular,* and *bar* are solitary figs, chiefly valued for their splendid shade. One or other is often to be found outside the gate of the village. The *gular* wood stands water especially well, and is used for well curbs, as is, though less frequently, that of the *pipal.* The *pipal* leaves, too, are very fine fodder; but are only used in famines, as the tree is sacred. The *pipal* and *bar* are very common in the valley of the Sarusti.

The *shisham, tut,* and *nim* are not very common except where sown. The first gives the best wood grown in these parts for all purposes which require strength and toughness. The fruit of the *tut,* or wild mulberry, is eaten by the children, and the twigs are used as withies for basket-work of all sorts, and for the lining of unbricked wells.

The *amb* or mango is the favourite tree for groves, and most villages in Panipat and in all parts of the Karnal tahsil except the Nardak have several. The fruit is exceedingly poor, and not sold as a rule. The leaves are used for charms, the wood for bowls for kneading dough, and for any purposes in which durability or strength is not required.

The *jamoa* is always used for the outer rows of groves, growing straight and tall and close together, and shielding the trees inside. It must be distinguished from the *jaman* or Eugeria jambos. The wood is used for building purposes and for bedsteads; and the fruit, which is inferior, is eaten by the villagers.

The *kaindu* is common except in the Khadir. The wood is very tough and hard, and is used for prongs and teeth of agricultural implements. It is a small tree, but a favourite with the people because its close foliage furnishes excellent shade.

The *"sonjna"* or horse-raddish tree yields long green buds which form a favourite pickle, and the tree is always ruthlessly lopped, as only the young shoots bear fruit.

The *bakain* or Persian lilac, with its delicious scent, is often found by the well. Its wood is used for ox-yokes.

At Karnal itself there are, probably, the finest fruit gardens in Northern India, dating back from the times of the old cantonment while the mangoes of the canal and other gardens surpass even those of Saharanpur. The old canal, too, has a very fine selection of trees, many of them rare, on its banks.

Chapter I, B.

Geology, Fauna and Flora.

Shrubs.

29. The *jal* and *kair* grow gregariously all over the higher and poorer parts of the tract, except in very light soils. The fruit of the former is called *pilu*. The buds of the latter are called *tint*, and are eaten boiled; the ripe fruit is known as *pinju*. Both fruits ripen in Jeth, and form a real resource for the poorer classes in famine years. The *kair* is especially valuable in droughts as it fruits a second time in autumn in dry seasons. The wood of the *kair* is greasy, and the churn-staff is therefore always made of it.

The *jhau* grows in the low sandy flats all along the river edge. The *simbhalu* is common in all the lighter soils of the tract. Both are used for basket-work, and for lining unbricked wells.

The *jand* makes good charcoal; and the unripe pods are called *sangar*, and eaten boiled or fried. The tree is often sacred to the inferior deities. In the Nardak it is partly replaced by the *nimbar*. Wherever the *jand* is abundant in the Nardak one may be sure that the soil is good.

The *jhar* flourishes everywhere except in the Khadir. The ripe fruit is eaten in Jeth. The bushes are cut in Katik and Jeth and piled in a heap (*bint*) to dry. They are then beaten with sticks, and the broken leaves form *pala*, a very valuable milk producing fodder. The leafless thorny bushes (*war* or *chap*) are used for hedges.

The *hins* and the *hingo* are common, especially the former. It is a noticeable feature of the Ghagar jangals. The cut bushes make splendid hedges, the thorns of the hins being especially formidable. The hingo makes good fuel.

The *arni* and *satrawal* are chiefly remarkable for the delicious and powerful perfume of their flowers, which scents the air for many yards round. The former is used for charcoal, and pipe stems are made of the branches.

The *thohar* or euphorbia, and the *nagphan* or prickly pear, are used for live hedges in the Khadir, where thorny bushes are scarce.

The *ak* grows everywhere, and is used in curing tobacco. Its root is officinal.

Among herbs the *piazi* is chiefly remarkable as the mark of bad sandy soil. It grows in cultivation only, chiefly in the Khadir. The *jawasa*, *rus*, and the two *kandai* grow among the crops in the light flooded soil along the river edge, and do them an immensity of harm. Their presence is a proof that the soil was too wet at sowing for the yield to be good. Traces of *lana* or the *sajji* plant are to be found in the Kaithal *tahsil*.

Chapter I, B.

Geology, Fauna and Flora.

Grasses.

30. The principal jangal grasses of the tract are given below omitting the many species that grow on fallow only:—

No.	Vernacular name.	Botanical name.	Reference.
1	Anjan ...	Andropogo iwarancusa...	S 253, P P 889, 1535.
2	Baru ...	Sorghum halepense ...	P P 880, S 262.
3	Dab ...	Poa cynosuroides ...	P P 1540, 1782. S 254. N W P ii, 278.
4	Dila ...	Cyperus tuberosus ...	P P 880, S 264
5	Dubh or Dubra	Cynodon dactylon ...	P P 875, 1783 S 253. N W P ii, 203.
6	Gandhi ...	Andropogon sp. ? ...	P P 877.
7	Gathil ...		
8	Kuri ...	Eragrostis sp. ?	S 255.
9	Lanp.		
10	Munj ...	Saccharum munja ...	P P 1878, 1802. S 261
11	Muthpura ...		
12	Palwa ...	Andropogon annulatum	P P 879. S 248.
13	Panni ...	Andropogon muricatum	P P 1534, 1803. S 248. N W P ii, 308.
14	Rus.		
15	Sanwak ...	Panicum colonum ...	P P 836, 876. S 258.
16	Sarala ...	Heteropogon contortum	S 255.
17	Sarkara ...	Saccharum spontaneum	P P 880. S 261

The *dab* is the *kuça* or sacred grass of the Hindus. It is a coarse grass generally found in company with the *dhak*, and is chiefly used for ropes. It is cut in Katik, dried, beaten, soaked in water for a few days in the hot, or a month in the cold, weather, and the fibre washed and dried. The process requires litte labour, and the ropes never rot. They are not strong, however. They are used for the ropes of the Persian wheel, where they will last three months or more, for stringing bedsteads, and for general purposes. Buffaloes eat the young grass, and the old grass is sometimes used for thatching.

Panni is a tall coarse grass growing in lowlying moist places and in flooded land. It is very abundant, and is the principal thatching grass of the country. Its roots form the sweet smelling *khas* used for *tattis*. The culm or seed stem is called *beran* or *sink*, and is used for making brushes, and for religious purposes. Buffaloes eat the young grass.

The *sarkara* or *sarkanda* (tiger grass) is found on the canal and in the Khadir. The thick strong culms are called collectively *bind*, and are used for making chairs, boxes, and screens and the leaves for thatching. Mr. Baden-Powell would seem to have confused this grass with the one next following.

Munj is very like *sarkara* in general habit and appearance but is much thinner in the stem, and is found only in the Khadir. The top of the culm is called *tilu*, the sheathing petiole *munj* and the two together *majori*. *Munj* is used for making string and rope, and is stronger than *dab*. It is also used for matting. The *tilu*, which is peculiarly fine, elastic and polished, is used

Grasses.

for making winnowing fans (*chhaj*), coverings to protect roof ridges, carts, &c., from the rain (*sirkhi*), clothes boxes, and the like. This grass must be distinguished from the hill *munj* of the Panjab, which is *Andropogon involutum*, and is here called *bhabar*.

The following are the best fodder grasses in order of merit:— *Anjan*, *dubh*, *palwa*, *sarala*, and *gathil*. All these are cut and stacked as hay. *Sanwak*, when young, is useful; but falls off as it gets older. The seeds of *sanwak* and the roots of the *dila* or sedge are eaten on fast days.

CHAPTER II.

HISTORY.

SECTION A.—PHYSICAL.

Chapter II, A.

Physical History.

Changes in the course of the Jamna.

31. The question whether the Jamna ever, as thought by some geologists as well as archæologists, formed a part of the western water system, is too large to touch upon; but if the Jamna ever did run into the Indian Ocean, the two large and very remarkable bights in the Bangar on which the cities of Karnal and Panipat stand, and which cut right through and extend to the west of the water-shed, almost certainly mark two intermediate steps in its change to its present course; and the old course must have run along the foot of the Nardak step, where the old main canal ran. But changes in this stream have been, during historical time, confined within the limits of its present Khadir. That it did once flow below the towns of Karnal and Panipat, in the bed immediately under the Khadir bank now occupied by the Burhi Nadi, is beyond a doubt. And it is also certain that it did not at once wholly abandon that bed; but that a branch of some importance continued to flow in the old channel till comparatively recent times. In 1398 A.D., Timur encamped on the banks of the river of Panipat on his way from Panipat to the Jamna; and the Ain Akbari, written about 1590 A.D., states that "the stream of Sanjnauli (a village in the Khadir) runs under the town of Karnal." There is a universal tradition that the Burhi Nadi used to flow regularly in flood times within a comparatively recent period; and within the memory of man the floods have passed from the river above Dhansauli and run down the old bed as far as Dehli, the last occasion being in 1864 A.D. But the strongest evidence is afforded by the map, which clearly shows that in some parts of its course the river or its branch suddenly changed its course, while in others it gradually retreated. On this part of the Jamna, the villages on the river edge divide alluvion thrown up in front of them by straight lines drawn from the end of their old boundaries to meet the main stream. The result is that, as the general tendency of the stream is to shift eastwards, the boundaries of villages which have had a gradually receding river frontage for any considerable period, run out to the east in long parallel lines. This formation is well marked on the present river frontage; and it is impossible to look at a map showing the village boundaries of the Karnal, Panipat, Sunpat, and Dehli Khadirs, without being convinced that exactly the same process has taken place in some places and not in others along the course of the Burhi Nadi or Ganda Nala, the dry channel of which still runs under the Khadir bank. There

Changes in the course of the Jamna.

are three well-defined blocks of land which are clearly marked off from the rest of the Khadir by the superior stiffness of their soil, and by their sharply-defined river bank. They are: (*a*) the block including Baraganw, (*b*) that including Ata, Dahra, Rakasahra and Ganaur, and (*c*) that including Barsat, Pundri, Babail, and Korar. Now, these blocks consist of villages with more or less circular boundaries, while the villages to the west of them show marks of alluvial accretion; and there is little doubt that these former villages were at no very distant period on the east bank of the Jamna. This conclusion is borne out by local tradition, which tells us that Ganaur and Barsat, with all the villages about them, formerly lay to the east of the river. Mr. Ibbetson writes as follows:—

"My personal knowledge of the soil of every village in the Khadir, and of the innumerable old channels still to be traced, has convinced me that these two areas (*b* and *c*) have wholly escaped the river action which in comparatively recent times has gone on throughout the remainder of the Khadir, and that here, and here alone, the main river has changed its course suddenly and not gradually. It follows, of course, that the change in that course may have taken place after, and not before, the date of origin of these villages."

As regards the date of the change, almost the only data we have are the number of generations for which the various Khadir villages are said to have been inhabited. The Panipat tradition is that the river left the city walls in the times of Buali Kalandar, or about 1300 A.D. The villages over which the river appears to have passed comparatively recently show from 10 to 15 generations in their genealogical trees; those which the river appears to have gone round, from 20 to 30. Of course, even supposing the genealogical tree to be absolutely correct, it by no means follows that all the generations have followed since the foundation of the village, for the community traces back its descent to its common ancestor; and it is always possible, and, in villages settled as offshoots from a neighbouring parent village, almost certain, that the family as it stood at some stage of its descent from him, and not the ancestor alone, emigrated to the new village. Much information on the riverain changes of the Panjab is to be extracted from the first few pages of Mr. Medlicott's sketch of Panjab Geology, published in the Provincial volume of this Gazetteer.

The Chautang and Nai Nadi.

32. The existence of numberless abandoned wells throughout the Nardak jangals affords certain proof that the tract was once far less arid than it is now; for extensive irrigation with water at 70 to 90 feet from the surface is impossible, at any rate to Rajputs. The whole countryside says that the Chautang was dug out and straightened by some former Emperor, and used in old days to flow continuously as a canal; and that when the stream became intermittent, the water-level sank and the wells were abandoned. The names of the builders of many of the wells are known; and it would appear that the change dates

Chapter II, A.

Physical History.

The Chautang and Nai Nadi.

from not so very many years back.* It is noticeable that Nadir Shah, in January 1739, crossed "a large river" at Tiraori on the Nai Nadi; and the people say that one of the old Emperors built a dam and turned part of the Chautang water into the Nai. The whole matter is intimately connected with the interesting question of where Firoz Shah's canal really did run.

Famines.

33. This will be the most convenient place to give such information as is available with regard to the earlier famines in these parts. In 1783 A.D., or 1840 S., there was a terrible famine known as the *chalisa* in which grain rose to 4 seers the rupee, and the horrors of which have been handed down by tradition to the present generation. No efforts were made to relieve the distress, and even rich men died in numbers. In 1803 A.D. or 1860 S., there was a total failure of crops, and great distress, but little mortality. In 1812 A.D., or 1869 S., grain rose to 10 seers per rupee; but great efforts were made to encourage private enterprise and transport, and the mortality was not great. In 1824-25 A.D., or 1881 S., there was a terrible famine. In the former year the crops withered up; in the latter none were sown. No grass sprang up, the cattle died, agricultural operations were suspended, the people fled, and not one-fifth of the revenue was collected, and in many villages none was even demanded. The export of grain to the south, where the distress was even more severe than in the tract itself, helped to raise prices. But there would not appear to have been any very great mortality.

In 1833 A.D., or 1890 S., the whole country was overwhelmed by the most terrible famine which village tradition can recall, forming the epoch from which old men fix the dates of events. In many villages no land was even ploughed up for the autumn crop; in but few was any seed sown; in none was a crop reaped. What little grass sprang up was eaten by locusts. The cattle died;† grain rose to 8 seers per rupee, and the people followed their cattle; while crowds of emigrants from the high-lands to the west poured into the district to help the residents to starve. The spring rains were abundant, and where cultivation was possible, an ample yield combined with famine prices more than covered the money loss of the preceding season; but men and cattle alike were wanting to take full advantage of the opportunity. And when the rains of 1834 again failed, the district simply broke down. Large remissions and suspensions of demand were made, large balances accrued on the remainder, the jails were once more filled with defaulters, and villages were again deserted in every direction. On this occasion it was pro-

* See also para. 12.

† Mr. John Lawrence says:—"As early as the end of April there was not a blade of grass to be seen for miles, and the surrounding plains were covered with the carcases of the cattle which had died from starvation. On the canal splendid crops were cut down and sold as fodder to those who could afford to pay for them."

Chapter II, A.

Physical History.

Famine.

posed to prohibit the export of grain to the west; but Government sternly refused to allow of "any tampering with the grain market as highly objectionable in principle, and likely to lead to disastrous results.

In 1837 A.D., or 1894 S., the failure of the rains again caused the greatest distress. In the district itself there was nothing more than a severe drought, in itself a sufficiently depressing circumstance. But further south the calamity assumed the proportions of a great famine, so that in some places the people were "driven to move bodily to find food elsewhere;" and the demand for grain thus created drove up prices in Panipat to famine rates. Wheat was again at 8 to 10 seers per rupee. In 1841 A.D., a terrible epidemic of fever ravaged the whole of the Dehli territory, the mortality being so great that "in many places the crops died for want of persons to look after them," while the Government revenue showed a deficit of Rs. 2,37,000; and in 1843 another of a similar character, but even more terrible, devastated the country. In 1842 the rains failed, but the calamity assumed the proportions of a drought rather than of a famine. In 1851 a drought began, which continued to 1852, almost causing a famine; and the effects upon the crops were "infinitely disastrous." In 1858 A.D., or 1917 S., the rain-fall was scanty; in 1859 it consisted of "only three or four heavy showers;" in 1860 it was less than 6 inches at Karnal. Within two months the price of wheat rose from 23 to 9 seers per rupee, the large export of grain across the Jamna greatly enhancing the demand. Relief works were set on foot, and from January to September 1861, the weak and sickly were fed at an expense to which the famine fund alone contributed Rs. 41,500. In August of the same year, 22,237 souls received relief in this manner. Cholera broke out in the camps, and the mortality was considerable among both men and cattle. In the Nardak two-thirds of the collections were suspended; and between 1860 and 1863 balances of Rs. 43,000 accrued, of which more than Rs. 27,000 had eventually to be remitted.

In 1869 A.D. or 1925 S., a famine again occurred, which was not so general, nor in the lower parts of the district so severe as that of 1860. But in the Nardak and the Kaithal *tahsil* the failure of crops was more complete, and the distress greater; and the terrible mortality among the cattle left far more lasting effects upon the prosperity of the people. In 1868 both crops entirely failed, and in 1869 no rain fell till August, and the autumn harvest was accordingly scanty, while the spring harvest again entirely failed. Relief works of a very extensive nature were again opened, and alms distributed as before. From first to last Rs. 1,71,643 were spent, and 19,90,700* souls fed, the daily average of helpless persons receiving gratuitous relief in April 1862 being Rs. 12,120, in addition to Rs. 1,814 on relief works. Cattle to the number of 65,000 died, and

* *i.e.* adding up the daily totals of persons relieved.

Chapter II, A.

Physical History.

Famines.

"saved the *Chamars* and *Chuhras* from starvation." Of the Nardak in particular, the Deputy Commissioner wrote:—

"Hundreds of people are in a state of semi-starvation, never getting enough to eat from one day to another. Not a leaf is to be seen on the trees that have, while they lasted, made a wretched substitute for fodder for the cattle. Skeletons of cattle in all directions, empty huts, and lean countenances of the people remaining in villages, indicate a state of poverty fully justifying the relief proposed."

The Government, in its review of the famine, stated that it was more severe in Karnal than in any other district of the Panjab. The suspensions for the district, including the high tract of Kaithal, were Rs. 46,647, Rs. 19,400 out of a demand of Rs. 24,000 being suspended in the Nardak of the Karnal *tahsil* alone in 1869. Nearly 20,000 cattle died in the Nardak alone, and the people have never recovered from the effect of this terrible blow, directed as it was at their most certain source of sustenance.

During the progress of Mr. Ibbetson's Settlement operations a drought, in some respects more destructive, because more prolonged than any of its predecessors, afflicted the Nardak. From 1875 to 1877 the people had not a single good crop. Poor-houses were opened, and relief works set on foot; but mortality was small, and in fact famine pitch was hardly reached. But the grass famine was terribly complete; and the cattle again suffered fearfully. Large remissions and suspensions were again sanctioned, but the strain on the resources of the people was very severe.

The spring harvest of 1883 was a very poor one. The summer and winter rains of 1883-84 were failed, and in the drier tracts there were no crops. The grass famine was intense, and the cattle had to be driven off to the hills, whence many never returned. The loss of plough bullocks was very large. The policy of giving large suspensions was adopted and has been continued ever since in the drier tracts and the equally insecure country, whose crops depend on the floods of the Sarusti and Ghagar, whenever the necessity has arisen. It must be remembered that when the highlands are enjoying a bumper harvest, the Naili is very likely to be drowned. In the Kaithal *tahsil* alone, excluding Pehowa, Rs. 38,774 were suspended in 1883-84, Rs. 18,462 in 1884-85, Rs. 40,819 in 1885-86, and Rs. 15,473 in 1887-88. Advantage has been taken of every good season to reduce the balances, and in the autumn of 1888 only about Rs. 3,000 remained uncollected. It is not too much to say that the success or failure of the new settlement depends on the continuance of this policy in all tracts outside the influence of the river and the canal.

It is curious to note the regularity with which drought or famine years recur, as shown in the following series of years:—1783, 1803, 1812, 1824, 1833, 1842, 1851, 1859, 1869, 1877, 1883.

Chapter II, B.

Political History.

SECTION B.—POLITICAL.

General remarks.

34. The great plain of which the district forms a part, lying, as it does, at the very door of Hindustan, has from the time of the Mahabharata to the establishment of English rule been the battle-field of India. But Karnal is so near to the capital of Dehli, that whenever and for so long as the empire which centred in that city existed as more than a name, its political fortunes were practically identical with those of Dehli itself. Thus all that will be attempted here is to relate so much of its political history as is distinct from that of the Imperial city, and to notice briefly the historical events which took place within the tract itself. The tribal history of the tract is given in Chapter III.

Antiquities.

35. Considering the close connection of the tract with the legendary history of India, the objects of antiquarian interest existing in it are few in number. Among the most curious of them is the old shrine of Sita Mai, at the village of that name in the Nardak. It is built in the ordinary form of a Hindu temple, of which Mr. Fergusson gives many examples in his hand-book of Indian Architecture. It is of brick; but the curious feature is the elaborate ornamentation which covers the whole shrine, the pattern of which is formed by deep lines in the individual bricks which seem to have been made before the bricks were burnt, so that the forms they were to take must have been separately fixed for each brick. A large part of the shrine was pulled down and thrown into the tank by some iconoclast Emperor: and though the bricks have been got out and the shrine rebuilt with them yet they have been put together without any regard to the original pattern. The broken finial, part of which has been recovered, is of a curious shape if it was originally made for a Hindu temple, as it is more suggestive of Buddhist symbolism. The shrine is said to mark the spot where the earth swallowed up Sita in answer to her appeal for a proof of her purity. The shrine of Kalandar Sahib at Panipat possesses two slabs of touchstone of very unusual size. It was built by Khizi Khan and Shadi Khan, sons of the Emperor Ala-ud-din Ghori. Panipat possesses several buildings dating from early Afghan times; and the Kabul Bagh mosque built by Babar will be mentioned below.

Minars which mark the course of the old Trunk Road are still standing at intervals of about two miles. And the ruins of the hostelries (*sarais*) at Tiraori, Gharaunda, and Simbhalka are still in existence, that at Gharaunda being a very fine and striking specimen of early Mughal architecture. It was built by Khan Firoz in the reign of Shah Jahan about 1632 A. D. The contrast between the huge brick gates which were then necessary for the protection of travellers, and the slight structures which now suffice for the same purpose, speaks volumes as to the state of the country at the respective periods.

Chapter II, B.

Political; History.

Antiquities.

The old bridge at Gula has already been referred to. It is of stone, apparently the spoils of some Hindu temple. An elaborately carved slab found in the bed of the Puran immediately below the bridge is now in the Lahore Museum. There is another ancient bridge across the Sarusti at Polarmazra near Siwan, but only some of the piers remain.

Early Hindu history.

36. Karnal is included in the *Brahmarshidesa*, or land of divine sages, the sacred river Sarusti being at Thanesar, only 20 miles north of Karnal, and the Drishadvati, if that is the Chautang, cutting the district excluding the Kaithal tahsil into two nearly equal parts. All the north-western portion, comprising most of what is called the Nardak, is included in the *Kurukshetra* or field of the great battle described in the Mahabharata and caused by the refusal of the Kauravas to give up the five *pats*, of which Panipat was one. In fact Nardak is properly but another name for the Kurukshetra, though it is wrongfully but conveniently extended, by local custom, to a certain conterminous area to which it does not properly apply. The word is said to mean ruthless (Sanskrit *Nirdayaka* merciless); and the story goes that the Kauravas and Pandavas, being relations, sought for a place to fight where the inhabitants should be specially hard-hearted, and chose this spot because there they found a man cutting off his son's head with which to dam his water-course. A tank in Rataulí in the S. of Kaithal is pointed out as the place where this incident occurred. But Huen Tsang says that the Nardak was known as the Happy Land when he visited it, and this would seem to point to *dukh* or pain, as the second factor in the world. The limits of the Nardak and the antiquities of the tract are elaborately discussed by General Cunningham in his *Archæological Survey Reports*, II, 212 to 226, and XIV, 86 to 106, and *Ancient Geography*, 329 to 336.*

The southern boundary of the Kurukshetra is the Nai Nadi, which cuts off the western corner of the Karnal *pargana* and re-appears in the south-west corner, where, at the village of Sink, or south-west corner of the Kurukshetra, Tarku Jakhsh is said to be situated; and all that lies beyond this line is included under the general term *arab* or non-Nardak, or is called *dher*, meaning vast. The Nardak itself is also called *ran* or battle-field, and the term *ran kalar* is locally applied to any barren soil, as they say that such soil marks the spots where the sparks from the weapons of the combatants fell. The scenes of many of the incidents narrated in the Mahabharata are still pointed out by the people, and the whole area is full of *tiraths* or holy tanks. It was at the village of Bastali (*Vias Asthal*) that the

* On this subject Mr. Ibbetson, remarks:—"With all due deference to so distinguished an authority, I cannot help thinking that General Cunningham raises some unnecessary difficulties. Huen Tsang's words may surely be taken to mean that the *radius*, and not the *circumference*, of the Happy Land was 200 li. And Manu surely states that the Kurukshetra is not included in the Brahmavarta. I think General Cunningham's reading of the text would exclude some of the holy places which he himself includes in the Nardak."

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sage Viasa lived who wrote the Mahabharata; and there that the Ganges flowed underground into his well to save him the trouble of going to the river to bathe, bringing with it his *lota* and loin cloth, which he had left in the river, to convince him that the water was really Ganges-water. The well is still there to shame the sceptic. It was at Gondar that Gotama Rishi caused the spots in the moon, and gave Indra his 1,000 eyes. It was in the Parasir tank at Bahlolpur that the warrior Duryodhana hid, till Krishna's jeers brought him unwillingly out to fight, and at the Phalgu tank in Pharal that the Kauravas and Pandavas celebrated the funeral ceremonies *(çraddha)* of the warriors who had fallen in the war. The local legends are far too numerous and lengthy to give here; they have been collected into a little book called Kurukshetra Darpan, compiled in 1854 by Munshi Kale Rai, Extra Assistant Settlement Officer of Thanesar, and printed at the Koh-i-nur Press, Lahore.

Amin and Pehowa.

37. Some account must, however, be given of two famous old sites, Amin and Pehowa. The former is a large village in the north of the Indri *pargana*. The following notice of it is extracted from Cunningham's *Ancient Geography of India*, p. 337 :—

" Five miles to the S. S.-E. of Thanesar there is a large and lofty mound called " Amin, " which is said by the Brahmans to be a contraction of " Abhimanyu Khera," or the mound of Abhimanyu, the son of Arjun. The place is also named " Chakrabhyu," or the " Arrayed Army," because the Pandavas here assembled their troops before their last battle with the Kauravas. Here Abhimanyu was killed by Yayadratha, who was himself killed the next day by Arjun. Here Aditi is said to have seated herself in ascetic abstraction to obtain a son, and here accordingly she gave birth to Suryya, or the Sun. The mound is about 2,000 feet in length from north to south, and 800 feet in breadth, with a height of from 25 to 30 feet. On the top there is a small village called Amin, inhabited by Gaur Brahmans, with a temple to Aditi and a " Suryya Kund" on the east, and a temple to the Suryya on the west. The " Suryya Kund " is said to represent the spot where the Sun was born and accordingly all women who wish for male children pay their devotions at the temple of Aditi on Sunday, and afterwards bathe in the " Suraj Kund."

Pehowa or Pehewa is thus described in the *Ancient Geography of India* (p. 336) :—

" The old town of Pehowa is situated on the south bank of the Sarusti, 14 miles to the west of Thanesar. The place derives its name from the famous Prithu Chakravarti............ The story of the cure of Raja Vena's leprosy by bathing in the Sarusti is told in the Vishnu Purana. On his death his son Prithu performed the usual *çraddha* or funeral ceremonies, and for 12 days after the cremation he sat on the banks of the Sarusti offering water to all comers. The place was, therefore, named Prithudaka or Prithu's pool, from Sanskrit *udaka* water; and the city which he afterwards built on the spot was called by the same name."

In Vol. XIV of the *Archæological Survey Reports* a full account is given of the numerous holy places at Pehowa. The inscrip-

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tion described in the same volume is now in the Lahore Museum. There is no doubt Pehowa is a place of great antiquity. In modern times the last Sikh ruler of Kaithal, who built a beautiful house for himself near the town, did his best to increase its religious importance. The story of Raja Prithu's connection with Pehowa is no doubt a somewhat late Brahmanic legend. Any one who visits the place in the rains, when the Sarusti is in flood, will understand why it was called Prithudaka. (S. *prithu*, wide, and *udaka*, water).

Buddhist period.

38. The number of Indo-Scythian coins which are found at Polar on the Sarusti, 10 miles north of Kaithal, would seem to show that these parts were, about the Christian Era, included in the Indo-Scythian Empire; and Safidon, on the border of the district, is still pointed out as the site of the great slaughter of snakes (or Scythians with a snake *totem*) mentioned in the Mahabharata. About 400 A. D. the Chinese pilgrim Fa Hian, and again in 635, his successor Huen Tsang, traversed the district. At the time of the latter's visit it was included in the kingdom of Thanesar. The curious form in which the legend of the Mahabharata is given by the traveller is most interesting. It is not improbable that the Gominda monastery described by him, and identified by General Cunningham with the village of Gunana, is now represented by the monastery of Sita Mai, which is only four miles from Gunana.

Early Muhammadan invasions.

39. In 1011 A.D. Mahmud Ghaznavi sacked Thanesar, only 20 miles from Karnal, but made peace with the Dehli Raja and returned without coming further south. In 1017 A.D. he plundered Mathra. In 1039 A.D. his son, Sultan Masaud, annexed this part of the country, leaving a governor at Sunpat to administer it in his name; but it was re-conquered by the Hindus four years later. In 1191 A.D. Muhammad Bin Sam Ghori was wounded and his army utterly routed by Rai Pitora at Narana, seven miles from Karnal and three from Tiraori. This village is situated in the Nardak, on the Nai Nadi. Next year the Sultan returned, found Rai Pitora encamped on the same spot, defeated and killed him in the battle which ensued, and conquered Dehli. This battle finally substituted Muhammadan for Hindu rule throughout the Dehli territory, Kutbuddin Aibek being left at Dehli as the representative of the Ghori monarch, and being made independent by Ghiasuddin Ghori in 1205 A.D. under the title of Sultan.

History under the Pathan dynasty.

40. On the death of Kutbuddin in 1210 A.D., his Indian possessions were divided into four provinces, Dehli and its environs falling to the share of Sultan Shamsuddin Altamash. The province of Lahore was given to Tajuddin Yeldoz; and in 1215 the two fell out about their common boundary, and in a battle, again fought at the same village of Narana, Tajuddin was killed. In 1390 A.D. Prince Humayun, afterwards Sultan Alauddin Sikandar Shah, who was in command of the army of

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his father Sultan Nasiruddin Muhammad Bin Firoz, pitched his camp at Panipat and plundered the environs of Dehli, which was in the possession of the rebel Abu Bakr Tughlak. The latter marched out and defeated him at Pasina, a small Khadir village some seven miles south of Panipat, built on the deserted site of a very large village which is still said by the people to have been destroyed in a great battle. There were 4,000 cavalry engaged on one side alone on this occasion. In the early years of Mahmud Shah's reign (1394 to 1396 A.D.) the pretender Nasiruddin Nasrat Shah held the fiefs (*ikta*) of Sambhal, Panipat, Jhajjar, and Rohtak, the Emperor being almost confined to the capital. In 1397 Mulla Ikbal Khan, one of Mahmud's Generals, and Governor of the Fort of Siri, drove Nasiruddin by treachery from his head-quarters at Firozabad; and the latter took refuge with Tatar Khan who had been Prime Minister to Ghiasuddin Tughlak, II. Ikbal Khan then seized upon Mahmud's person, and practically ruled in his name. Meanwhile Tatar Khan had encamped at Panipat, and Ikbal Khan marched against him; whereupon Tatar Khan leaving his baggage and materials of war at Panipat, reached Dehli by forced marches and laid siege to it. Ikbal Khan then invested Panipat and took it in three days, upon hearing which Tatar Khan raised the siege of Dehli and fled to Gujrat.

Invasion of Timur.

41. When Timur Shah invaded India, he marched through the district on his way to Dehli. His route is very fully described in his autobiography, and also in the Zafar Nama: and it is easy to trace it throughout, except between Munak (Akalgarh) and Asandh. It is almost certain that he crossed the Sarusti and Ghagar by bridges at Polar Mazra and Gula.* From Kaithal he marched through Asandh to Tughlakpur, which was said to be inhabited by fireworshippers. The name Tughlakpur seems to be forgotten. Price identifies the place with Safidon. But it is almost certainly Salwan; the words "the people of this place who also called Salun," being probably a misreading for "*which* is also called Salwan." From Salwan he marched, the front of his army extending for more than 20 miles, to Panipat, which he reached on 3rd December 1798 A. D. The people had deserted the town in obedience to orders from Dehli; but he found there 10,000 heavy maunds, equals to 160,000 standard maunds, of wheat which he seized. Next day he marched six *kos* and encamped on the banks of "the river of Panipat, which was on the road." This can have been no other than a branch of the Jamna, then flowing under the town in the channel of the *Burhi Nadi* or old stream. He then marched *via* Kanhi Gazin to Palla on the Jamna in the Dehli *tahsil*, while a detachment harried the country round and brought in supplies. Seven days later he

* The place at which the bridge on the Ghagar was situated is variously called Kutila and Kubila in Elliot's Indian Historians, but these, no doubt, are mistakes of the scribes for Gula.—*J.M.D.*

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defeated Sultan Mahmud at Dehli. Ferishta says that Timur returned by Panipat; but this seems to be a mistake for Bagpat.

42. In the anarchy that followed the departure of the invader, and in the subsequent struggle between the Saiyids and the Lodis, Karnal was entirely separated from Dehli, and belonged, first to the ruler of Samana, and eventually to the Lodi rulers of the Panjab. During the reign of Bahlol Lodi, his son Prince Nizam Khan, afterwards Sikandar Lodi, seized Panipat and held it as *jagir* without permission. He made it his head-quarters, and his force there included 1,500 cavalry. Karnal and Panipat were on the high road from Sirhind and Firozpur to Dehli; and from the time of Timur to that of Akbar, or for 150 years, armies were constantly passing through the tract, and battles, more or less important, being fought in it.

First battle of Panipat.

43. In 1525 A.D. Alauddin Alim Khan was sent by Babar with a Mughal army against his nephew Sultan Ibrahim Lodi, and was joined at Indri by Mian Suliman, a Pirzada of Panipat, with additional forces. Being defeated near Dehli, he retreated to Panipat, where he tricked his friend Suliman out of three or four *lakhs* and went on his way. He shortly afterwards rejoined Babar; and next year the Mughal army marched on Dehli. Leaving Ambala, Babar marched *via* Shahabad to the Jamna near Halahar in *tahsil* Pipli, and thence followed the river bank to Karnal. There he heard that Alauddin, whom he had sent on towards Dehli, had been defeated by Ibrahim, and that the latter had advanced to Ganaur. Mounting his horse at Gharaunda *sarai*, Babar led his army to Panipat, which he selected for the battle-field, as the town would cover one of his flanks. He arrayed his army about two *kos* to the east of the city, and with his right flank resting on the walls. Ibrahim Lodi took up a position at the same distance to the south-west of the city, and for a week nothing more than skirmishes occurred. At length, on 21st April 1526 A.D., Ibrahim Lodi's forces advanced to the attack, were utterly routed, and were pursued by Babar's army to Dehli, while the conqueror remained encamped for a week to the west of Panipat. He considered the spot a fortunate one, treated the people well, and made Sultan Muhammad Angluli, who had assisted him with troops, Governor of Panipat.

In this battle Ibrahim Lodi was slain, and his tomb lies between the *tahsil* and the city of Panipat. The District Committee about the year 1866 erected a tomb or plain platform over it, with a short Urdu inscription in order to rescue the site from oblivion, (see Chapter VI. S. v., Panipat). It was one of Sher Shah's dying regrets that he had never fulfilled his intention of erecting a tomb to the fallen monarch. In this battle, too, was killed, while fighting in Babar's army, Sanghar, the founder of the Phulkian family of Patiala, and Vikramaditya, the last of the Tomara dynasty of Gwalior. The battle is fully described by several authorities, Ferishta's descriptions differing materially from that of Babar himself. After the battle

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Babar built a garden with a mosque and tank on the spot; and some years later, when Humayun defeated Salem Shah some four miles north of Panipat he added a masonry platform and called it *Chabutra Fatteh Mubarik*. These buildings and the garden still exist under the name of Kabul or Kabil Bagh.* The building bears an inscription containing the words "Binai Rabi ul Awwal 934 Hij." In 1529 the Mandhar Rajputs of the Nardak rebelled under their chief Mohan, and defeated the royal troops. Babar then burnt the rebel villages. Later on, during the struggle which led to the expulsion of Humayun, Fatteh Khan Jat, Governor of the Panjab, rebelled and laid the country waste as far south as Panipat.

Second battle of Panipat.

44. When Humayun died at Dehli, the young Akbar, who was then in the Panjab, marched at once under the guardianship of Bahram Shah to meet the Afghan army under the great Hindu General Himu, who was advancing from Dehli. Passing through Thanesar, he arrayed his army 10 miles north of Karnal, and then marched to Panipat two *kos* to the west of which city Himu was encamped. After a week's skirmishing, Akbar sent a detachment round the city to take Himu in the rear, and advanced to the attack. The result was the death of Himu and the total rout of the Afghans. Next day Akbar marched to Dehli, which he entered without opposition. The battle took place on 20th November 1555 (5th November 1556?) and is fully described by the Emperor Jahangir and by Ferishta.

Mughal dynasty.

45. During the early years of the Mughal dynasty† the empire was so firmly established at Dehli that the district can hardly be said to have possessed a separate history. In 1573 Ibrahim Husen Mirza, Governor of Baroda, rebelled and plundered Panipat, Karnal, and the surrounding country. And again in 1606, Prince Khusro revolted and passed up this way from Dehli, plundering and pillaging as he went. When he reached Panipat he was joined by Abdur Rahim; and Dilawar Ali Khan, who was at Panipat with an imperial force retreated before them to Lahore. Jahangir himself shortly followed in pursuit, and moralised upon the success which Panipat had always brought to his family. He then ordered the Friday devotion to be always held in mosque of Kabul Bagh which Babar had built; and this custom was continued till the Mahrattas occupied the mosque in the last battle of Panipat. For more than two centuries the country enjoyed

* Some say that Babar said the spot was "*Kabil Bagh*," fit for a garden; others, that he planned the garden on the pattern customary in Kabul. Babar had a wife called Kabuli Begam; and Sir E. Colebrooks says her name may possibly be derived from the name of a species of myrobalan (J.R.A.S. xiii, 279).

†It is generally said that this dynasty, really Turks, were called Mughals, because to the Indian every foreigner was a Mughal, just as every Indian is still a Moor to the British private. It is a curious fact that native officials are commonly called Turks by the villagers of these parts. If Munshis, perhaps all Hindus, are in the village rest-house, one villager will tell another—"*Turk log chopal men baithe hue hain,*"—"There are Turks in the rest house."

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peace under the Mughals, the Western Jamna Canal was constructed, the Dehli-Thanesar Road was put in repairs, *sarais* were erected at every stage, and a *minar* and well made at every *kos* for the use of travellers. The *minars* (brick pillars 24 feet high) and wells still exist; but the *sarais* of Simbhalka, Gharaunda, and Tiraori are in ruins, while that of Karnal has disappeared.

Territorial divisions under the Mughals.

46. In the *Ain Akbari* we have the first record of the administrative divisions of the district. From very early times Panipat formed a separate fief or "*ikta*," which probably included the Karnal *pargana*; and in fact Karnal is never mentioned in the early histories, and apparently was a place of little importance till towards the close of the Pathan dynasty. In Akbar's time the whole district was included in *Suba* Dehli, and the greater part of it in *Sarkar* Dehli, of the seven *Dasturs* comprised in which *dasturs* Panipat was one, with 10 *parganas* as follows:—Panipat, Karnal, Safidon, Kutana, Chhaprauli, Tanda, Bhawan, Ganaur, Jhinjhana, Kandla, and Gangir Khera. But the *Dastur* of Gohana in *Sarkar* Hissar may have included, and *pargana* Sunpat in *Dastur* Dehli, *pargana* Thanesar in the *Dastur* of that name and in *Sarkar* Sirhind, and the *Dastur* of Indri in *Sarkar* Saharanpur, almost certainly did include some part of the district. *Pargana* Habri was also in *Sarkar* Sirhind. A new *pargana*, Azimabad, containing 42 villages, taken from Indri, Karnal, and Thanesar, was subsequently formed with its head-quarters at Azimabad-Tiraori. In the fourth year of Farrukhsir, that monarch is said to have separated the *pargana* about Simbhalka from Panipat as a royal demesne for his own private expenses. It was not then known as Simbhalka; and when we took the country that name was only applied to a few villages held by a *jagirdar* living at Simbhalka. But there was a large *pargana* of Jaurasi in which Simbhalka was included and which was also the head-quarters of a *thappa*; and, as this Jaurasi is divided into Jaurasi *sarf khas* and Jaurasi *khalsa* and as the Panipat *pargana* is said to have consisted of 16½ *thappas*, it is almost certain that what Farrukhsir did was to separate one *chaurasi* for his private expenses or *sarf khas*. As a fact though this and many other similar groups of villages similarly assigned for specific purposes were often callad *parganas*, yet the old *kanungos'* record of the part of the district settled by Mr. Ibbetson between 1750 and 1806 at any rate shows only the two original *parganas* of Karnal and Panipat.

Decay of Mughal dynasty.

47. Towards the end of the 17th century the Dehli Empire was fast falling to decay, and the Sikhs rising to power. In 1709 Banda Bairagi, some time the chosen disciple of Guru Govind, raised his standard in these parts, and, collecting an army of Sikhs, occupied the whole of the country west of the Jamna. He laid the whole neighbourhood waste and especially the

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neighbourhood of Karnal, where he killed the *faujdar* and massacred the inhabitants. He was defeated by Bahadur Shah near Panipat in 1710, but escaped to found Gurdaspur. In 1729 a charge on *pargana* Karnal of five *lakhs* of *dam* was granted to Dilawar Ali Khan Aurangabadi, whose ancestors had formerly held the *pargana* in *jagir*.

Invasion of Nadir Shah and Battle of Karnal.

48. In 1738 Nadir Shah, enraged at not being recognised by the Dehli court invaded India. On 8th January 1739 he reached Sirhind, where he learned that Muhammad Shah with an enormous army occupied a strongly fortified camp at Karnal. Nadir Shah marched on to Tiraori, on which, it being a fortified town, he had to turn his guns before it would open its gates to him. Here he learned from some prisoners he had made that the approach to Karnal from the direction of Tiraori was through dense jangal, and exceedingly difficult; and that Muhammad Shah had no room to move in, being encamped in a small plain which was hardly sufficient for his camp, and surrounded on three sides by thick woods. He accordingly resolved to take the enemy in flank from the south-east. On the 15th January he left Tiraori, and marching round by the banks of the Jamna to the back of the city, advanced to a position close to the Dehli camp; meanwhile he sent Prince Nasr Ullah Mirza with a considerable force to a spot on the canal and close to Karnal. All this time Muhammad Shah was not even aware that Nadir Shah was in the neighbourhood. Just at this time a detachment which had been sent to oppose Saadat Khan, the Viceroy of Oudh, who was marching from Panipat with reinforcements, and missing the enemy had followed him up to Karnal, came to close quarters with him. Nadir Shah and Prince Nasr Ullah at once marched to the support of this detachment, which was the first intimation the imperial army had of their presence. The engagement which followed was not decisive. But the army of Muhammad Shah, which had already been encamped for three months at Karnal and had suffered greatly from want of supplies, was now cut off from the open country in the rear and food became so scarce that a ser of flour could not be bought for four rupees. Thus Muhammad Shah was starved into submission, and on the 13th February yielded to the invader who led him in his train to Dehli. The operations are very minutely described in the Nadir Nama. Sir Willam Jones, in his French translation, speaks much of "Darian Hamun" close to Karnal, and between it and the Jamna. Mr. Ibbetson suggests that the words may be *darya Hamin*, and refer* to the canal, which had already been described as a large river. In 1748 Ahmad Shah was met at Panipat by the royal paraphernalia and the news of the death of Muhammad Shah, and there and then formally assumed royal titles. In 1756 the Wazir Ghazi-ud-din brought

* More probably "*darian Hamun*" is a faulty transliteration of "*daryae Jaman*," ح and ج being easily confounded.—*J.M.D.*

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Alamgir II a virtual prisoner to Panipat, and thus caused a mutiny in the army, the Wazir being dragged through the streets of the city. A horrible massacre followed the outbreak.

Third Battle of Panipat.

49. From this time to the establishment of English rule, a time of horror followed which is still vividly remembered by the people, and was fittingly ushered in by the greatest of all the battles of Panipat. In the rainy season of 1760, Sedasheo the Mahratta Bhao marched upon Kunjpura, an Afghan town close to Karnal, which was then strongly fortified, and at which 20,000 Afghan troops were then encamped. He put the whole of them to the sword, and pillaged the country round. Nijabat Khan, the ancestor of the present Nawab of Kunjpura, was taken prisoner on this occasion. Ahmad Shah, who was in the Doab was unable to cross the Jamna in time to prevent this disaster but at length he forced the river near Bagpat and advanced against the enemy, who, encamped at the time at the village of Pasina Kalan, where the battle of 1390 A.D. had been fought, retreated to Panipat. There the Mahrattas strongly fortified themselves; and the line of their entrenchments can still be traced on the plain between Risalu and Panipat. The Duranis encamped close in front of them on the plains north of Risalu and Ujaon: and for five months the two armies, numbering more than 400,000 souls, remained engaged in fruitless negotiation and constant skirmishes. The accounts of the horrors of that time given by the people are very striking. The whole country round was devastated by the opposing hordes, and the inhabitants fled, insomuch that the people say, that besides the town, only the three villages of Phurlak, Daha, and Bala were inhabited at the time of the actual battle. The Durani army had free access to their camp on all sides, while they gradually confined the Mahrattas more and more to their entrenchments. The latter had long ago consumed all the provisions obtainable at Panipat; at length supplies wholly failed; and on the 6th January 1761 the Bhao advanced to action. The battle is fully described by several authors. The Mahrattas were utterly routed and many of them were driven into the town of Panipat, whence next morning the conqueror brought them out, distributed the women and children, and massacred the men in cold blood. The fugitives were followed all over the country, and killed wherever they were overtaken. It is said that 200,000 Mahrattas were slain in this battle. The people still point out the spot where the Bhao stood to watch the fight, marked by an old mango tree which has only lately disappeared. They say that the Mahratta General of artillery, one Bahram Ghori, had been insulted by the young Bhao, and in revenge put no balls in his guns, otherwise the Giljas as they call the Ghilzai followers of Ahmad Shah would certainly have been beaten; and that the Mahratta fugitives were so utterly demoralised that the Jat women beat them with baskets, made them get off their horses, and plundered them royally.

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The Sikh Invasion.

50. No sooner had the Mahrattas temporarily disappeared than the Sikhs appeared on the scene of action. In 1763 they defeated Zin Khan, the Durani Governor of Sirhind, and took possession of the whole of Sirhind as far south as Panipat. "Tradition still describes how the Sikhs dispersed as soon as the battle was won; and how, riding night and day, each horseman hurled his belt, his scabbard, his articles of dress, his accoutrements, till he was almost naked, into successive villages to mark them as his." Raja Gopal Singh on this occasion seized Jindh, Safidon, Panipat, and Karnal, though he was not yet strong enough to hold them; but in 1772 he was confirmed in his possessions up to within a few miles north of Panipat and west of Karnal, as a tributary of the Dehli Emperor. At the same time Gurdit Singh seized Ladwa and Shamgarh up to within a few miles north of Karnal. A considerable part of the Indri *pargana* fell to the share of Sardars Bhanga Singh and Bhag Singh of Thanesar, and the chiefs of Kaithal and Ladwa, while part was conquered by leaders of little note belonging to the Jamerayan section of the Dallewalia confederacy. The Nawab of Kunjpura managed with difficulty to keep the whole of the revenues of a considerable number of estates, in others he was forced to give a share to the Shamgarh Chief and the Sikhs of Churni.

Conquest of Kaithal by the Sikhs.

51. While Indri was conquered by confederacies of horsemen from the Manjha, Kaithal fell into the hands of a Malwa Sikh family, closely connected with the Phulkian Chief of Patiala, being in fact the hereditary religious guides of that house. In A. D. 1733 Kaithal was held from the Dehli Government in *jagir* or farm by one Kamr-ud-din Khan, a Biloch by tribe, who held some important office in the Government; this man was slain in the massacre of Dehli by Nadir Shah in A. D. 1738. Azim-ulla-Khan, of the same family, seeing the declining state of the Government, endeavoured to shake off his allegiance and assume independence. He gave out the different villages in farm and returned with a force to collect his revenues. Ikhtiar Khan, an Afghan, was one of the principal *zamindars* with whom he engaged, and who sometimes paid but as frequently resisted and appropriated the revenues. Matters continued in this state till A. D. 1751. Inayat Khan, Afghan, a *zamindar* of some influence, persuaded the people to join him, in resisting the demands of the Biloches, raised a considerable force for the purpose, and enjoyed the revenues himself. Matters continued in this state till 1755;—the successes of the Biloches and Afghans fluctuating, sometimes one, sometimes the other being successful as each could collect followers,—when in the year last mentioned the Biloches sent a Saiyid who encamped at Habri and sent for the Afghan chief; Inayat Khan, suspecting treachery, sent his brother Ghulam Bhik in his stead, and him the Saiyid put to death. Inayat Khan fled, and the Saiyid obtained easy possession of Kaithal, where he remained three months collecting revenue; but directly his

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Conquest of Kaithal by the Sikhs.

back was turned, Inayat Khan again stepped in and assumed possession.

In A.D. 1756 Tahawwur Khan, brother of Kamr-ud-din, came with a force to claim his late brother's *jagir*. He was opposed by Inayat Khan, who was beaten and fled, but a short time after during the same year, having collected a force, the latter made a night attack upon the city of Kaithal and obtained entrance at the Siwan gate: a fight ensued in the streets of the town, in which Tahawwur Khan's brother-in-law, who commanded, was killed and his army dispersed. The Afghans or attacking force consisted of only 500 men, while that of the defeated Biloches amounted to 1,000. Thus ended the Biloch possession; rule it cannot be called. They were never able to make head again, and Inayat Khan was left in undisturbed possession, collecting the revenues and paying tribute to no one. He was not, however, destined to a long or prosperous rule, for he fell a victim to treachery in A. D. 1760. He had long been at enmity with one Azim Khan Marhal, of Samana, who had taken possession of Bhaurak, a village in the *pargana*, and 5 miles north of the town, of Pehowa. The Marhal invited him to the Kuhram fair on pretence of making up the quarrel, and there murdered him; but had soon to repent his treachery, for Bhik Bakhsh and Niamat Khan, brothers of his victim, collected a force, marched against Bhaurak, took it, and put the Marhal to death. The two brothers continued in possession, it cannot be called government, of Kaithal till A.D. 1767; when Bhai Desu Singh advancing from Bhuchoki encamped at Kutana, where he collected further forces and munitions of war, and then marched against Kaithal, which succumbed after but a weak resistance and thus commenced the Sikh rule.

Bhik Bakhsh died in exile, but his brother Niamat Khan was treated liberally by the conqueror, who conferred upon him several villages in *jagir*;—one of which, *viz*. Ujana, his descendents retain to the present day. Thus in the short space of 29 years, *viz*., from 1738 to 1767, Kaithal had changed rulers no less than three times.

	Commenced.	*Ended.*
1. Rule of Kings of Dehli ...	... ...	A.D. 1738
2. Rule of Biloch ...	1738 ...	1756
3. Rule of Afghan ...	1756 ...	1767

Third battle of Panipat.

52. Recalled by the Sikh conquests Ahmad Shah appeared for the last time in Hindustan, in 1767, and, defeating the Sikhs in several battles, marched as far as Panipat; but as soon as he disappeared, the Sikhs again resumed their hold of the country. In 1774 Rahimdad Khan, Governor of Hansi, attacked Jindh; but was defeated with heavy loss, while Gajpat Singh again seized Karnal. In 1777 Najaf Khan, the Imperial Wazir, marched in person to restore his authority. The Sikhs invited the aid of Zabita Khan, a Rohilla Chief, who had rebelled; and joining their force with him, encountered the Imperial

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Third battle of Panipat.

army at Panipat, and fought a battle said to have been only less terrible than that of 1761. No marked advantage remained with either side; and by a treaty then concluded between the Rajas and the Emperor, the Sikhs relinquished their conquests in Karnal and its neighbourhood, excepting seven villages which Gajpat Singh was allowed to keep, and which probably included Shera, Majra Jatan, Dharmgarh, Bal Jatan, and Bala.

Mahratta invasion.

53. But the treaty was not observed; and in 1779 a last attempt was made by the Dehli court to recover its lost territory. In November of that year Prince Farkhanda Bakht and Nawab Majibuddaulah marched out at the head of a large army, 20,000 strong, and met some of the minor Sikhs at Karnal. He made terms with these chieftains, who were jealous of the growing power of Patiala; and the combined forces marched upon that state. While negotiations were in progress, reinforcements advanced from Lahore, the Karnal contingent deserted, bribery was resorted to, and the Imperialists retired precipitately to Panipat. About this time Dharm Rao held the southern portion of the district on the part of the Mahrattas, and was temporarily on good terms with the petty Sikh chiefs north of Karnal. In 1785 he marched, at the invitation of the Phulkian chiefs, against Kaithal and Ambala; and after some successes, and after exacting the stipulated tribute, withdrew to his head-quarters at Karnal. In 1786 Raja Gajpat Singh of Jindh died, and was succeeded by his son Raja Bhag Singh. In 1787 Begam Samru was operating against the Sikhs at Panipat, when recalled to the capital by Ghulam Kadir's attack upon Dehli. In 1788 Amba Rao united with Zabita Khan's son to make an incursion, and was again joined by minor Sikhs at Karnal, and levied a contribution on Kaithal.

Scindia.

54. In 1789 Scindia, having killed Ghulam Kadir and reinstated Shah Alam, marched from Dehli to Thanesar and thence to Patiala, restored order more or less in the country west of the Jamna, and brought the Patiala Diwan back with him as far as Karnal as a hostage. In 1794 a large Mahratta force under Anta Rao crossed the Jamna. Jindh and Kaithal tendered their homage; but the Patiala troops surprised the army in a night attack, and Anta Rao retired to Karnal. In 1795 the Mahrattas once again marched north, and defeating Raja Bhag Singh at Karnal, finally wrested that city from him and made it over to George Thomas, who took part in the fight. He had also obtained the *jagir* of Jhajjar, and making himself master of Hissar harried the neighbouring Sikh territories; meanwhile Sardar Gurdit Singh, of Ladwa, obtained possession of Karnal. In 1798 Begam Samru was stationed with her forces at Panipat to protect the western frontier during the struggle with Jaipur. In 1799 Scindia sent General Perron, to whom the *pargana* of Panipat had been granted, to bring the Sikhs to order. He recruited at Karnal,

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Scindia.

where the Nawab of Kunjpura joined him; but matters were settled amicably, and the army returned *viâ* Panipat, where they were joined by Begam Samru, and took advantage of the opportunity to chastise Naultha and other large villages for not having paid their revenue to Perron's Collector. In 1801 Thomas made a foray through Karnal and Panipat, and then retreated to Hansi. The Sikhs asked the Mahrattas for help against him; and Scindia, on the Sikhs promising to become his subsidiaries and pay him five *lakhs* of rupees, sent General Perron against him. In the battle that followed Thomas lost all his conquests, retired to British territory and shortly afterwards died. Safidon and Dhatrat were then made over again to Jindh by the Mahrattas. The people of Bhagal in the north of Kaithal still tell how Thomas carried off hostages from their town and only released them when ransomed by the Bhai of Kaithal.

Conquest by the English.

55. On the 11th September 1803, Lord Lake defeated the Mahrattas at the battle of Dehli; and on the 30th December, Daulat Rao Scindia, by the treaty of Sirji Anjangam, ceded his territories in the north of India to the allies: while the Partition Treaty of Poona, dated five months later, gave the provinces about Dehli, from that time known as the conquered provinces, to the English. The chiefs of Ladwa and Thanesar with five thousand Sikhs fought against us at the battle of Dehli. Immediately after the battle Begam Samru made her submission to General Lake; and Bhag Sing of Jindh and Lal Singh of Kaithal were hardly less prompt. Their advances were favourably received; and in January 1805 they joined their forces with ours. The Sikh chiefs, who had actually fought against us at Dehli, continued to display active hostility, till they were finally routed by Colonel Burn at the end of 1804. In March 1805 an amnesty was proclaimed to all the Sikhs on condition of peaceable behaviour; but Gurdit Singh of Ladwa was expressly excluded from this amnesty, and in April of the same year the English forces marched upon his fort of Karnal and captured it.*

State of the country in 1805.

56. So ended that terrible time called by the people *Singhashahi ka Ram-Raula* or *Bhaogardi*, the "Sikh hurly-burly," or the "Mahratta anarchy," Its horrors still live vividly in the memory of the villagers. The Sikhs never really established their grasp over the country south of Panipat; and they held what they did possess only as feudatories of the Mahrattas. But the whole period was a constant contest between the two powers; and the tract formed a sort of no-man's-land between territories, and, coveted by both but protected by neither, was practically the prey of the strongest and most audacious free-booter of the

* According to the schedule attached to the Treaty of Sirji Anjangam, the tract under the Mahrattas was held as follows:—Karnal, annual value Rs. 14,000, by Seth Singh, Sikh; Barsat, Faridpur, Rs. 35,000, by General Perron; Panipat Rs. 99,478 by Babaji Scindia; Ganaur, Rs. 6,932, Sunpat, Rs. 39,348 and Gohana Rs. 1,16,329, by Colonels John and Geo. Hasting. The whole list is extraordinarily incorrect.

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State of the country in 1805.

day whether hailing from the Panjab or the Deccan, for nobody cared to spare for to-morrow what he might only possess for to-day. Even as early as 1760, Nadir Shah had to approach Dehli by way of the Doab, as owing to the constant passage to and fro of the Mahratta troops, the country was so desolated that supplies were unprocurable; and 40 years later, when we took over the district, it was estimated that "more than four-fifths was overrun by forest, and its inhabitants either removed or exterminated." The arrangement of the villages in groups of small hamlets, sprung from, and still holding sub-feudal relations with the large parent village, made the concentration of the population in a few strongholds natural and easy; and out of 221 villages in *pargana* Karnal the inhabitants of 178 had been wholly driven from their homes and fields. The royal canal had long dried up, and thick forest had taken the place of cultivation, and afforded shelter to thieves, vagabonds, and beasts of prey. In 1827 Mr. Archer remarked that "only a very few years had elapsed since this part of the country was inhabited wholly by wild beasts." Deserted sites all along the old main road still tell how even the strongest villagers had to abandon the spot where their fathers had lived for centuries, and make to themselves new homes on sites less patent to the eyes of marauding bands. Every village was protected by brick forts and surrounded by a deep ditch and a wall of some sort; every group of villages was at deadly enmity with its neighbours; and there are several instances where two contiguous villages, in memory of a blood feud dating from the Mahratta times, refuse to this day to drink each other's water, though otherwise on friendly terms. In 1820 the Civil Commissioner reported and the Governor-General endorsed his conclusion, that "the native administration took no concern in criminal justice or police, any further than as its interference in those respects might be made subservient to its immediate pecuniary gains; and that the village communities, while they held the property of their own society sacred, habitually committed depredations and aggressions on other villages or on travellers, *and generally shared the plunder they obtained with the ruling power or principal local authority*. Revenue administration there was none; the cultivator followed the plough with a sword in his hand; the Collector came at the head of a regiment; and if he fared well, another soon followed him to pick up the crumbs."

Early English policy.

57. Meanwhile Lord Wellesley had returned to England and Lord Cornwallis had been sent out expressly to reverse his policy. The leading feature of the new programme was the withdrawal from all the recently acquired territory west of the Jamna. And as that territory had to be disposed of, it was natural that the petty chieftains who had done us service in the late struggle, even if only by abstaining from or relinquishing opposition to us, should be rewarded. The whole

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country was therefore parcelled out between them and others. In the words of General Sir David Ochterlony who superintended the whole arrangements—

"In the acts of that day I see many of most lavish and impolitic profusion: but not one in which I can recognise true British liberality and generosity. The fact is notorious that the policy of those times considered the most of our acquisitions beyond the Jamna as incumbrances; and the Governor-General's Agent's only embarrassment was, how to dispose of what Government had declared they could not or would not keep, in the manner least likely to be ultimately injurious to our vital interests. With this object in view he formed a belt of *Jagirdars* round our ultra-Jamna possessions from Karnal to Agra."

The sovereign powers of the Rajas of Jindh, Kaithal, Ladwa, Thanesar, and Shamgarh and of the Nawab of Kunjpura, were confirmed and they were continued in the lands held by them under treaty from the Mahrattas, except that Ladwa was deprived of Karnal, as already mentioned. Besides this Jindh was granted Gohana, and the five villages of Shera, Majra Jatan, Baljatan, Bala, and Dharmgarh or Murana; and he and the Raja of Kaithal had the *pargana* of Barsat-Faridpur, made over to them jointly. The villages of Uncha Siwana, Rainpur, Ranwar, Kambohpura, Kailas with Mangalpur and Pipalwali, were made over to the Nawab of Kunjpura. The Mandals, who held large *jagirs* in Muzaffarnagar, were induced to exchange them for so much of *pargana* Karnal as was left unallotted, the grant being made in perpetuity subject to the payment of a fixed quit rent. Begam Samru received considerable grants, including some villages of the tract, in addition to her original fief of Sardhana; and considerable grants were made to people who had done good service, and notably to Mirza Ashraf Beg and Mir Rustam Ali, about 1870. The *jagirs* which had been given in 1805-6 were declared grants for life only and were taken under our police supervision. They were gradually resumed on the death of the holders. In 1809 the Jindh Raja endeavoured to obtain from Government his old *pargana* of Karnal, but the *pargana* had already been allotted, and the endeavour was unsuccessful.

Final assumption of sovereignty by the English.

58. The policy which bade us abstain from interference west of the Jamna did not long stand the test of actual practice. In 1806 Ranjit Singh crossed the Satlej with his army and marched to Thanesar, and it soon became apparent that either he or we must be master. The events and negotiations that followed, how the Sikh army marched about within 20 miles of our lines at Karnal, and how we were compelled to insist upon Ranjit Singh's withdrawal beyond the Satlej, are told in most interesting detail by Sir Lepel Griffin in his *Panjab Rajas*. The treaty of Lahore, dated 25th April 1809, and the proclamation of the 3rd of May following, finally included the country to the west of the Jamna in our Indian Empire; and with this event ended the political history proper

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of the district. The times are still fresh in the memories of the people, and the names of Lord Lake and Sir David Ochterlony (*Vulgice* Lony Ochter) still familiar to their tongues.

Relations of the English Government with the Cis-Satlej Chiefs.

59. By the proclamation of the 3rd of May 1809 the Sikh Chiefs of Malwa and Sirhind were taken under the protection of the British Government, and guaranteed " the full exercise of the rights and authority in their own possessions which they had hitherto enjoyed." They were to assist any British force passing through their country, and to aid in repelling invasion.* Two years later, a proclamation, dated August 22nd, 1811, announced the determination of Government to turn a deaf ear to all complaints against the chiefs brought forward by their subject *zamindars*, who were warned that " the attainment of justice was to be expected from their own chiefs only." At the same time it was proclaimed, that the violent attempts by one chief or confederacy to seize upon the property of another, such as had been common in the past two years, would not be tolerated. It was doubtless the intention of Government to abstain, as far as possible, from interference in the Cis-Satlej States, but the history of the next forty years is one of increasing control on the part of the English officers, and waning authority on the side of the chiefs.*

The Resident placed at Dehli after the defeat of Scindhia, had charge of all our political relations with protected or independent States in the north-west of India; but though Sir David Ochterlony, who was stationed at Karnal, was theoretically subordinate to him, he really was the chief agent of Government in all affairs connected with the dependent chiefs. He was himself appoined Resident in 1819, and had assistants at Karnal, Ludhiana, and Subathu.

In 1821, the Resident at Dehli was replaced by a Governor-General's Agent, and the officer stationed at Karnal was made Superintendent of all the protected and Hill States. Next year the latter's office was removed to Ambala. In 1840, a Governor-General's Agent for the north-west frontier was appointed, with his head-quarters at Ambala. He had political control over all the Sikh States from the first, and in 1842, the civil jurisdiction in the lapsed territories, which had remained with the Agent at Dehli, was transferred to him.

Bhag Singh's share of the Thanesar lapsed in 1830 and Bhanga Singh's in 1850. Part of Jindh was acquired in 1834 and the Kaithal State was taken over in 1843. These

* It was impossible that the engagements made in 1809 should be literally fulfilled. They were founded on a total misconception of the political circumstances of the Cis-Satlej Sikhs, and the extraordinary manner in which a large part of the country was held by confederacies of Sikh horsemen, each of whom had a very petty share. "In 1818 Sir David Ochterlony frankly owned to the Marquis of Hastings that his proclamation of 1809 had been based on an erroneous idea. He thought that a few great chiefs only existed between the Jamna and the Satlej, and that on them would devolve the maintenance of order." (Cunningham's *History of the Sikhs*, page 152).

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lapses were due to the failure of the families of the original conquerers and there were many petty escheats from the same cause. Immediately after the annexation of Kaithal a group of 23 outlying villages known as Mahala Gabda was made over to the Raja of Jindh in exchange of 38 estates lying to the south and east of Rajaundh. In 1846 the Ladwa State was confiscated as a punishment for treason in the Sikh war.

When the Kaithal State was escheated, an assistant to the Governor-General's Agent was stationed at Kaithal, and when Thanesar and Ladwa lapsed, they were included in the Kaithal District.

Reduction of chiefs to the status of *jagirdars*.

60. For a considerable time our interference in the affairs of the dependent chiefs was mainly confined to the decision of disputes as to succession, and the settling of quarrels between State and State as to the surrender of criminals, the restoration of stolen property, &c. The internal government of each State was left in the hands of the chief, who enjoyed paramount criminal, civil, and fiscal powers. In all the larger, and some of the smaller States, transit dues were levied. As escheats occurred our territory became much intermixed with that of the independent chiefs. Constant difficulties arose as to the surrender of criminals who had fled from our jurisdiction or from one Sikh State into another. In all but the most heinous cases, the chief in whose territory a criminal was found, was left to deal with him, and debtors and revenue defaulters were secure, once they had crossed the boundary of a neighbouring State. It was not uncommon to find four or five rival jurisdictions within a radius of 10 miles, and sometimes two existed in a single village. Such a state of things was productive of extreme administrative confusion. In the first Sikh war, some of the chiefs were actively hostile and others lukewarm and in 1847 all were deprived of their criminal jurisdiction. This was a great boon to the people of the country, who still speak with strong dislike of the "*faujdari*" of the *jagirdars*. In the same year the feudal service, which the latter were bound to render to Government, was abolished, and in lieu of it a commutation tax of Rs. 16 per mensem for every horseman, and Rs. 6 per mensem for every footman, whom they were bound to furnish, was imposed. This was afterwards commuted into a tax of two annas per rupee of revenue in *jagir* estates. In some estates the rate of commutation is higher, in a few it was reduced to one anna in the rupee for services rendered during the mutiny.

Two years later, the *jagirdars* were deprived of their civil powers, and made amenable to our courts. Thanesar, Kunjpura, and Shamgarh were deprived of sovereign powers and reduced to the position of simple *jagirdars*. Finally in 1850, all *jagir* estates not already settled at the request of the *jagirdars* or

zamindars, were ordered to be put under cash assessment.

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Account of families of former ruling chiefs.

61. It will be convenient to give here a brief account of the Sikh families which ruled in Kaithal, Thanesar, and Ladwa.

The Sikh Bhais of Kaithal.

62. The Kaithal State, as it was constituted when it passed by escheat into the hands of the British Government, was acquired by Bhai Desu Singh, the 4th son of Bhai Gurbakhsh Singh, himself a descendant of a Rajput *zamindar* of Jaisalmer. The father of Gurbakhsh Singh, Bhai Ram Dial, had a great reputation as a saint. Gurbakhsh Singh himself "had little of the saint about him, and thought more of annexing territory than of religion." With the countenance of Raja Ala Singh, of Patiala, whom he had accompanied on many expeditions, he conquered a number of villages for himself, including some in the north of the present Kaithal *tahsil*. He left five sons, among whom his possessions were divided. The second son, Bhai Desu Singh, enlarged his dominion, first by the capture of Kaithal in *Samvat* 1824 (A.D. 1767), and then by the conquest of Chika and Pehowa. He or his brother Buddha Singh also seized Thanesar, Amin, and other estates in Indri, but Thanesar was soon lost, and most of Bhai Desu Singh's possessions in Indri fell into the hands of the chiefs of Thanesar and Ladwa. Bhai Desu Singh appears to have been a man of violent and debauched character. He built the original fort of Kaithal and several smaller forts about the district, and brought a water-course from Mangna to Kaithal. He had four wives, *viz.*, Rupkaur, mother of Bahal Singh; Ramkaur, mother of Khushhal Singh; Mai Bholi, no issue; Mai Bhagan, mother of Lal Singh. Jagat Singh Marhal became his agent and adviser. He died about 1779 having ruled 11 or 12 years. He amassed about 10 *lakhs* of rupees, and the knowledge of this is said so to have excited the envy of the Rajas of Jindh and Patiala that they caused the agents of the Dehli ruler to entice the Bhai to Dehli under pretence of having a *jagir* conferred upon him. On his arrival at the seat of Government, Desu Singh was confined, and only released on the promise of paying 8 *lakhs* of rupees, 6 of which he paid and gave his son Lal Singh as security for the remainder.

Of his three sons, Khushhal Singh, having died in childhood, is never mentioned. Bahal Singh succeeded to the rule, his elder brother being under restraint at Dehli;* but Lal Singh's mother having obtained his release on payment of Rs. 40,000, he shortly returned and assumed the government, driving his brother, who strongly opposed him, to Kularan. Thence Bahal Singh acquired Budlada, but was immediately put to death by hired assassins instigated by his worthy brother. Lal Singh

* Griffin (*Punjab Rajas*, page 48) says "Lal Singh was in confinement as a rebel against his father."

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The Sikh Bhais of Kaithal.

enlarged the dominions which he had inherited by fresh acquisitions, and he was, in 1809, the most powerful of the Cis-Satlej chiefs after the Raja of Patiala. He is described in the Rajas of the Panjab as "a very able man, though utterly untrustworthy, and so violent and unscrupulous that the English authorities had the greatest difficulty in persuading him to maintain anything like order." He resided chiefly at Kaithal. He drank deep, but appears to have been held in some respect by the lesser chiefs, who submitted frequently to his arbitration. He did good service to Perron in defeating George Thomas, and was rewarded in consequence by the gift of *pargana* Sulhar on payment of a *nazrana* of Rs. 60,000, little better than one year's revenue. His services were acknowledged by Lord Lake and rewarded by a handsome *jagir*, Gohana, in which, however, he had only a life interest. He added to the fort of Kaithal, indeed may almost be said to have built it, for it was nothing but a mud building before. Its picturesque towers are now visible for a long distance. He ruled for 33 years, dying about 1819 at the age of 49. He left behind him the character of a tyrant. On his death, his sons being 3 and 4 years old respectively, the government was carried on in the name of the elder Partab Singh, under the regency of his mother Sahib Kaur; but the boy only lived to the age of 12 years, and died of small-pox in 1823. Bhai Ude Singh,* still a boy, succeeded under the regency of Sahib Kaur, who even in after life had great influence over him; indeed she was more the ruler than he was, and to this perhaps may be attributed his being at variance with the neighbouring chiefs and at constant issue with his own villagers. He resided chiefly at Kaithal but frequently at Pehowa, and both places bear witness to his taste for architecture. He enlarged and beautified the fort of Kaithal, built the palace after the model of the house of Sir David Ochterlony at Karnal only on a more imposing scale, and near it a bridge over the Bidkiar Tirath, remarkable for nothing but want of breadth and its level surface. At Pehowa the garden house does great credit to the taste of the architect, but was left incomplete on his death. He built a house and laid out a garden likewise at Kankal near Hardwar. A masonry *band* that he erected across the Sarusti, near Pehowa which threw water down a cut irrigating numerous villages for 16 miles to Kaithal, was destroyed by the British authorities after escheat. He is described as debauched in private, in public a tyrant. He was bed-ridden for some years of his later life, and died at Kaithal on the 14th of March 1843 A.D. when the state lapsed, failing heirs, to the protecting power. Mr. Greathead was sent with a small escort to carry out orders of Government. But the Queen mother and her advisers, encouraged by the

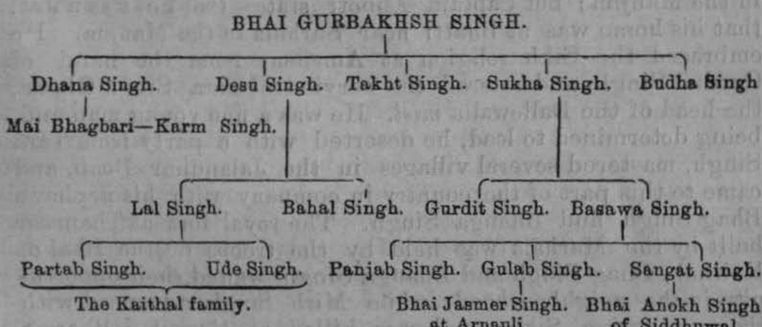
* "It is right that I should express my belief that the late Bhai Ude Singh was not the son of Bhai Lal Singh, and that the latter, when a prisoner at Dehli, was rendered incapable of having children." *Report of Major H. M. Lawrence,* dated 26th April 1844.

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secret advice of the agents of the Rajas of Patiala, Jindh, and Nabha, met every demand with an evasive answer. A strong remonstrance was addressed to the Rajas, and their agents were in consequence withdrawn. But things had gone too far for a peaceable settlement. On the 10th of April a riot broke out in Kaithal, and Mr. Greathead's escort was attacked and forced to retreat. Re-inforcements were despatched and the town and fort were speedily occupied. The Queen mother was allowed to settle at Pehowa where she died, never having to the very last moment given up her hope of restoration to the government of Kaithal. The succession was also claimed by Gulab Singh, the Bhai of Arnauli, a collateral relation of Ude Singh. But it was held that Gulab Singh had no claim to any of the conquests made by Desu Singh, but only to villages acquired by his own grandfather Sukha Sing, or by Gurbakhsh Singh, father of both Desu Singh and Sukha Singh. A handsome allowance was made to Mahtab Kaur, widow of Ude Singh.* The genealogical tree of the family is as follows :—



The Bhais of Arnauli came under the reforms of 1849, and ceased in that year to exercise any administrative functions. The present representatives of the family are Bhai Jasmer Singh, who resides at Arnauli in the northern portion of the Kaithal *tahsil*, and Bhai Anokh Singh, who resides at Budlada or sometimes at Siddhuwal near Patiala. They are Honorary Magistrates within the limits of their *jagirs*.

The chiefs of Ladwa.

63. The founders of the Ladwa State were two brothers named Sahib Singh and Gurdit Singh, who belonged to the Krorasinghia *misl*. They came from the Manjha, and, after the battle of Sirhind, established themselves at Babain and Ladwa. Their principal conquests are now included in the Pipli *tahsil* of Ambala, but they held a number of villages in Indri, some of which were made over to Kirpal Singh, the brother-in-law of Sahib Singh, and now form the Saga and

* For further particulars as to the Kaithal family, see the Postscript to Major Lawrence's "Report on the Kaithal territory" and Major Abbott's "Settlement Report."

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Shamgarh *jagirs*. Sahib Singh was killed in action near Karnal. Gurdit Singh was succeeded by his son, Ajit Singh, who obtained the title of Raja from Lord Auckland for building a bridge over the Sarusti at Thanesar, and also as a compliment to Maharaja Ranjit Singh, to whom he was related. He is described as "a dissipated, ill-disposed person, a tyrant in his own family, and as a chief, perfectly reckless" (article in *Calcutta Review* of October 1844 by Sir H. Lawrence). In the first Sikh war he threw in his lot with the Lahore Darbar, and joined the Khalsa army which was operating in the neighbourhood of Ludhiana. He was captured and imprisoned at Allahabad, but destroyed his jailer and escaped. His sons were kept under surveillance at Saharanpur, and he himself is believed to have died in Kashmir.

The Chiefs of Thanesar.

64. The founder of the Thanesar chiefship was Mith Singh. Captain Larkins states in his report on the Summary Settlement of Thanesar that Mith Singh was of a family of Nidga Rajputs of the village of Ajnala, *taluka* Panchgraian in the Manjha; but Captain Abbott states that he was a Jat, that his home was at Bhatti near Sarhala in the Manjha. He embraced the Sikh religion at Amritsar from the hand of Gurdial Singh, and entered the service of Tara Singh Gheba, the head of the Dallewalia *misl*. He was a fine young man and, being determined to lead, he deserted with a party from Tara Singh, mastered several villages in the Jalandhar Doab, and came to this part of the country in company with his nephews Bhag Singh and Bhanga Singh. The royal fort at Thanesar built by the Marhals was held by the troops of the Bhai of Kaithal; Bhag Singh and Bhanga Singh waited their opportunity in the neighbourhood, while Mith Singh advanced with the conquering Sikhs, and was killed at Meerut. Bhanga Singh and Bhag Singh, with the assistance of the Ladwa Sardars and Karam Singh Nirmilla of Shahabad, after one failure, made a successful night attack and possessed themselves of the fort of Thanesar. After the death of Bhai Desu Singh of Kaithal, a large part of his possessions in Indri, and some estates now in Pehowa, fell into the hands of the two Thanesar Sardars and of the Ladwa Chief. The territory conquered by Bhanga Singh and Bhag Singh comprised a number of estates in the present Indri *pargana*, some villages in Pehowa, and a large tract in the Pipli *tahsil* of Ambala. A partition was made Bhanga Singh taking $\frac{3}{5}$ths and Bhag Singh $\frac{2}{5}$ths. Sardar Bhanga Singh was a savage and determined ruler, and was the only Cis-Satlej Chief whom Ranjit Singh feared. He seized Ghiasuddinnagar, east of the Jamna, but the Mahratta Bhao Rana took it from him and gave him Bidauli instead. Lord Lake gave him some other territory east of the Jamna, in exchange for Bidauli, and it was held by him during his life. In 1806, with the assistance of the Ladwa Sardar Gurdit Singh, the Dallewalias wrested Adoha

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and Singhaur from the Landewalia *misl*, and Adoha was assigned as Bhanga Singh's share of the conquered territory. It was taken from him and restored to the Landa *misl* by Ranjit Singh; but when these territories came under British protection it was retransferred to Bhanga Singh. He died in 1815, leaving a son, Fatteh Singh, and a daughter by his wedded wife, and a son, Sahib Singh, by a concubine. The daughter, Karm Kaur, married Karm Singh, the Raja of Patiala, and six villages in Indri were given as her dowry. Sahib Singh had a *jagir* of 9½ villages in Indri, and was succeeded by his son, Bishn Singh, who died a few years ago without male issue. The remainder of Bhanga Singh's estate descended to his son, Fatteh Singh, who died in 1819, leaving a mother Mai Jian and two young widows. Mai Jian managed the estate till 1830 and died in 1836. Ratan Kaur, one of the widows, died in 1844, leaving the other widow Chand Kaur in possession of the estate, which lapsed on her death in 1850. Bhag Singh, the brother of Bhanga Singh, died in 1791, leaving four sons, three of whom died childless. The estate descended to Jamiat Singh, the son of the youngest brother, Baj Singh, who also died childless in 1832, when the estate lapsed.[1]

Sikh rule in Indri and Kaithal.

65. The state of that part of the Karnal District (*tahsil* Panipat and *pargana* Karnal), where the Sikh power had never been firmly established when it came to us in 1803, has already been described at page 42. In Indri and Kaithal the Sikh rule lasted for about 80 years. Its character varied with the character of the chief for the time being, but it was generally harsh and tyrannical. How bad it could be under a vicious ruler may be gathered from Captain Abbott's description of the state of things he found existing in the Ladwa State when it was declared forfeit, on account of the Raja's conduct during the first Sikh war. "The Jats * * * were fearfully oppressed and many of their number driven to seek subsistence in other territory. The oppression was not confined to the taxes I have enumerated, but their sons were obliged to attend on the Raja and were forced to take the Sikh religion. Their grounds were taken for preserves, their cattle seized and appropriated if caught trespassing in their jungles, in which, however, they were allowed to graze on payment of a fixed sum per head of cattle."

The Bhais of Kaithal had a sturdier population to deal with, and oppression was sometimes met by armed resistance. Major H. M. Lawrence, Assistant Agent to the Governor-General, N. W. Frontier, held charge of Kaithal for six or seven months after annexation. In the various reports which he submitted a striking picture is presented of the state of disorder to which the tract

(1) The above account of the Thanesar family is chiefly taken from Mr. Wynyard's Settlement Report of Thanesar. It differs in some particulars from that given on pp. 55—56 of Griffin's Panjab Rajas.

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had been reduced by the harsh rule of Ude Singh. Every man's hand was against his neighbour. Bloody frays were of constant occurrence, and the officers of the Sikh Government found it often to their interest to go shares with the marauders. The frontier villages especially were at constant war with their neighbours in Jindh and Patiala. The cattle went to graze guarded by herdsmen armed with matchlocks, the very wells had to be protected by towers in which the cultivator could take refuge with his implements of husbandry on the occurrence of a sudden alarm. The smaller villages were robbed by their Government on the one hand, and by their more powerful neighbours on the other. Many were altogether deserted, the owners taking refuge in larger villages which were able to defend themselves both against their rulers and their fellow-subjects.

Soon after leaving Kaithal Lawrence wrote :—

"The inhabitants are a very fine race, excellent cultivators, but, in hard times and dry seasons, as excellent marauders. A single Jaut village of Kaithal has been known to drive off in open day, a thousand head of cattle from Nabha, Jhind, Pattiala, or Karnal; and within the week the herd are scattered among the villages of Meerut or Saharanpore, a hundred miles off. The other two-thirds of the population are Rangurs (Mussulman Rajputs), Goojurs, and others, some Hindu, some Mahomedan, but all cultivating very little, grazing and cattle lifting a great deal. We have seen a Rangur village, with fifty or sixty pucka (bricked) wells, all but one in ruins, and thousands of acres of fine land allowed to run to waste. Indeed, except in a few Jaut villages, the cultivation in the midst of the forests of small stunted Jhund (a memosa) and Bun trees, as seen from the top of any of the robber towers, seem as little islands in the midst of the ocean. The people in fact live by stealing, and by the sale of *ghee* and milk, the produce of their flocks, and are, or rather were, as ready for a raid as ever were the MacGregors and Campbells to harry their lowland neighbours. We happened shortly after the lapse of Kaithal to be riding along the Jhind and Kaithal border with Rajah Saroop Singh, when seeing a party of villagers singing merrily while with their cattle treading out the saturated fields for rice cultivation, he laughing said "Ah, Sahib, they dared not have been thus employed a year ago." "Why not?" we asked, and were answered "Because their neighbours would have been down upon them, and driven off their cattle." (Lawrence in *Calcutta Review* of October 1844).

Great estates like Chhatar, Pai, and Bhagal would not stand much oppression.

"The people were accustomed to pay no revenue except upon absolute compulsion.........Kaithal was some years ago as lawless a tract as any in India, but something, I hope, has been effected for its improvement.........I may instance the Jat village of Chhatar which was formerly the very head-quarters of opposition to authority, and is said never to have admitted a Sikh within its quickset hedge. It was reckoned able to turn out a thousand matchlocks, and the four wards of the village were barricaded against one another." (Lawrence's Settlement Report).

The Jats of Pai withstood the army of the Bhai, though assisted by the forces of the Jindh chief, for eight months. The Tuhar Rajputs of Gumthala showed their independence by threatening Bhai Lal Singh with brickbats if he attempted to violate the privacy of their houses by riding through the village on an elephant. The Bhai had the good sense to take this rough remonstrance in good part, and remarking "We Jats have no *parda,* but they have," ordered the elephant to be taken round the outside of the village.

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The Sikh system of revenue collection will be described in a later chapter. In practice it consisted in squeezing the weak dry, and getting as much out of the strong as they would pay without resorting to armed resistance.

The artizans in Kaithal seem to have been heavily taxed, if the local rhyme is to be trusted.

"Bulaha julaha
Ki kaho Bakhshu kana
Panch rupiya ek thana.
Bulaha dhobi
Ki kaho Bakhshu katra
Panch rupiya ek pathra,"

which means that the Bhai orders the one-eyed Bakhshu, his *kardar,* whom he also calls familarly a buffalo's calf (katra), to levy five rupees for each loom and washing board.

66. Crimes of violence were rife, and, where any courts existed, they were corrupt and ineffective.

Administration of justice.

"As elsewhere shown, all crime is punishable or rather commutable by fine; the robber pays his "dund" (mulct) and goes to rob again, and, only when making himself very notorious or unduly plundering his master's subjects, instead of those of his neighbours, he may have his right hand cut off, or be chained in an outer room or verandah of the *thanah,* fort, or castle of his ruler, until his friends ransom him......... The fact is that justice is a farce in all native states; the gainer pays his *shookeranah* and the loser his *jooremanah,* and while the latter (the fine) is only a mulct upon unlawful gains, the former, the grateful present, added to delays and expenses, may entail ruin, making the injured always prefer private arbitrations, and yielding up half their flocks to preserve the other half......... In Kaithal it was, and in Pattiala it is still, ...the fashion for the judges to pass as many years in imprisonment as on the bench; probably as a means of eliciting for the Sircar (Government) a portion of the bribes supposed to have been given." (Lawrence in *Calcutta Review* of October 1844).

If this was the state of things in the larger states, it may be conceived that disorder was still more rife in the villages owned by petty pattidars, too weak to govern, but strong enough to oppress. Theoretically the Sikh pattidar with a fractional share of a village was as much a sovereign as the Kaithal or Ladwa chief.

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"Every Sikh in his patti affected perfect independence. Great are the evils that have arisen therefrom in the protected states. According to the treaty they were as long as possible not interfered with, and every Sardar and every pattidar, large or small, was his own magistrate as far as his own internal arrangements went—the political agent only having authority in the quarrels and border disputes between one Chief and the other, or where robbers passed from one state into another. But it was soon found that, although some of the Sardars managed their estates well enough, others, and the petty pattidars especially, harboured robbers and tyrannized over their cultivators. Indeed, as their own families increased and war and rapine decreased, there being no field left open but the Panjab army and agriculture for their sons, these pattidars have tried every means of driving the sole cultivators from their lands,[1] so that they might, through slaves or personal servants, cultivate the soil for themselves. Strictly speaking, we had no right to interfere even under Sikh oppression, but having laid themselves open by harbouring thieves and robbers, they were deprived of magisterial powers." (Lawrence in *Calcutta Review* of October 1844).

In reviewing Lieutenant Barr's journal of his march from Dehli to Peshawar in 1839, Sir H. Lawrence gives so graphic a sketch of the state of Indri at a time when only some thirty of its villages had lapsed to the British Government, and the rest were the patrimony of Thanesar, Ladwa, Kunjpura, and a number of petty chiefs and pattidars, that it is worth while quoting his remarks at length.

" Our author marched from Dehli to Karnal, half a dozen miles beyond which city he entered the protected Sikh states. The first place which he notes down in his journal is Azimabad, more generally known by the people as Telowree[2] .... It is a large town,[3] famed in the annals of the last hundred years as the scene of a great battle. It has been in many hands and is now in as unpleasant a predicament as any corporation can desire, that is, it belongs in equal shares to the Patan Nawab of Kunjpura and the Shamgurh Sikhs. Partnerships everywhere offer trials of temper, but it is not easy to conceive the contentions between Sikh and Patan co-partners, each, and particularly the stronger party, always desiring to cut the matter short by a stand-up fight. These feuds often involve the loss of crops to the parties, and between them the cultivators and traders fare most wretchedly. Three miles further is Leelokheree,[4] which is thus described :—

"We reached Leelokheree, which is about eleven miles from Karnal, at half past seven, and pitched our camp just beyond the extremity of the village, which is small and protected by a mud

(1) The peasant was not unfamiliar with oppression before he came under the Sikh yoke, but his ancestral fields had rarely been interfered with. The sting of the Sikh rule lay in this that the *zamindar* had planted at his own doors a village tyrant of peasant extraction like himself, who cast greedy eyes on his lands, and had time and inclination for constant acts of petty oppression.—J. M. D.

(2) *i.e.*, Tiraori.

(3) This must even then have been an exaggeration. The place possessed a fine imperial *serai* and a good *bazar*, but was never large, and is now greatly decayed.

(4) *i.e.*, Nilokheri.

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wall. Two or three lofty buildings stand in the centre of it, and are evidently intended as watch towers, whence a good look out may be kept" (Barr's Cabool and Punjab, p. 11).

On leaving Leelokheree it is observed :—

"Circular towers, similar to those at Leelokheree, constructed either of brick or mud overlooked the neighbouring district, and stood in the midst of every collection of huts, which, as far as I could observe, was invariably enclosed by a mud wall, thereby plainly indicating that the protected Sikh States, which we had entered this morning, are, or have been, at no distant period, subjected to the nightly prowlings of predatory marauders" (Barr's Cabool and Punjab, pp. 11 and 12).

Lieutenant Barr may well say so, and, had he gone down the Loodhiana road to Ferozepore or through Kaithal, he would have been still more convinced of the original propensities of the inhabitants of the protected Seikh States. Such towers used to protect every well in the country—the three at Leelokheree were probably built in opposition to each other by rival holders of the little town or rather village. It is now singly held by an old lady as her principality, though yielding less than a hundred pounds sterling a year. It was the chief place of a circuit of a dozen or so villages, held in co-partnery by different Seikh chiefs and parties, but now divided off into separate states. The neighbourhood is a very bad one, and we wonder much that Lieutenant Barr does not make a note of his having been robbed. He must have been so, but, perhaps out of delicacy omitted the entry."

The mutiny.

67. During the next sixteen years the whole face of the country was changed. Kaithal, Ladwa, and Thanesar lapsed, and the other feudatories were reduced to the level of mere assignees of land revenue. After considerable hesitation a cash assessment was given to the *zamindars* in *jagir* estates, but its collection was left in the hands of the *jagirdars*. The country settled down rapidly, and notwithstanding its proximity to Dehli it weathered the storm of 1857 without suffering very serious damage.

When the mutiny broke out Mr. Macwhirter, the Magistrate of Panipat, was at Dehli, and was killed there. Mr. Richardes, the Uncovenanted Deputy Collector, immediately took over charge; and though every other European fled, and the fugitives from Dehli warned him that the rebel cavalry were following on their steps, and though "burning and pillage reached to his very doors," he bravely stayed at his post, kept more or less order in the district, was active in collecting supplies for the troops passing through and for the army besieging Dehli, and succeeded in collecting more than seven *lakhs* of revenue, which he sent to the army. For these services he was appointed Deputy Commissioner of the 1st Class. Directly the news of the outbreak reached Jindh, the Raja collected his troops and proceeded by forced marches to Karnal, which he reached on the 18th of May. He restored order in the town and its vicinity, marched down the grand trunk road in advance of the British columns, turned his forces on Panipat, recovered Simbhalka which had been seized by the rebels, and

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kept the road open between Karnal and Dehli. The Maharaja of Patiala was no less prompt. He held Karnal, Thanesar, and Ambala in our behalf, and kept the road open from Karnal to Phillour. The Chauhans of the Karnal Nardak behaved well. They raised a regiment of cavalry, and they also supplied a body of 250 *chaukidars* for the protection of the city and civil lines, where our ordnance magazine was established. The Mandal Nawab of Karnal, Ahmad Ali Khan, from the very first placed himself and his resources unreservedly at our disposal. For these services his quit-rent of Rs. 5,000 a year was released to him and his heirs male in perpetuity; and he was presented with a *khilat* of Rs. 10,000 in open *darbar*.

In the Thanesar district Captain McNeile was Deputy Commissioner. His principal difficulty arose from the presence of a company of the mutinous 5th Native Infantry, which obliged him to have always at hand part of the Patiala force to keep them in check. The disarming of this company on the 14th July set the Deputy Commissioner at liberty, and from that time he made his head-quarters at Karnal. Mr. Levien, the Assistant Commissioner, was detached to Shahabad, and Lieutenant Parsons was sent from time to time to reduce turbulent villages, especially towards Kaithal, or to watch the fords and ferries of the river Jamna. In anticipation of a visit from the Dehli mutineers, Captain McNeile had, at the first, destroyed the stamp paper, and soon afterwards sent his treasure to Ambala; while the jail was fortified and the *jagirdars* called out. At one time it was rumoured that Ranghars from Hissar purposed to rescue their fellow-clansmen from the Thanesar jail, and the 31st May was the date fixed upon for the attack. Every preparation was made to repel it, but it did not take place. The Ranghar prisoners were immediately afterwards secretly removed to Ambala to be beyond hope of rescue. On June 9th the Raja of Patiala was compelled to draw off his forces from Thanesar in order to protect his own capital, which was in some peril from the Jalandhar mutineers; but as soon as he learnt that they had passed by, his troops were sent back to Thanesar, much to the relief of Captain McNeile.

As was to be expected at such a time, the more turbulent spirits among the people took advantage of the temporary suspension of authority to give trouble both to Government and to their neighbours. Even in the Panipat Bangar sixteen of the largest Jat villages in the Naultha *zail* refused to pay their revenue, drove out the Government village watchmen, joined in the disturbances in the Rohtak district, went to Dehli, whence they returned after an absence of 22 days, and threatened to attack the Collector's camp; while nineteen other large villages, mostly in the Bhalsi and Korana *zails*, rioted, burned some Government buildings, committed various robberies and murders, and refused to pay revenue. The Gujars were, of course, not behindhand, and plun-

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dered generally about the country. All these villages were fined and punished in various ways; and *lambardars'* allowances to the amount of Rs. 7,317, representing a revenue of Rs. 1,46,340, were confiscated. In the city of Panipat open sedition was preached, especially in the shrine of Buali Kalandar; and an attack upon the Collector's camp was only prevented by some Jindh troops hurrying up and turning their guns on the town. Hostages were seized, some few men hanged, and the pension of the shrine reduced from Rs. 1,950 to Rs. 1,000 a year. The *tahsildar* of Gharaunda, a Panipat man, had to be removed for disaffection.

If such was the behaviour of the Bangar, it may be imagined that the Nardak was not less troublesome. Some of the large villages caused much anxiety, notably Siwan, Asandh, Jalmana, Gondar, Salwan, Balla, Dachaur; they had no political cause in view, but the inhabitants being Muhammadan Rajputs and still unweaned from turbulent and predatory habits * broke loose in deeds of violence in general, and refused to pay the Government land revenue. Balla resisted a regiment of cavalry under Major Hughes, killing a native officer and some troopers, subsequently receiving severe punishment from the guns of the loyal Mandal Chief, Ahmad Ali of Karnal. Jalmana collected a large muster of Rajputs armed with the intention of releasing the prisoners of the Thanesar jail, a purpose which they failed to effect. Asandh seized the Government police station in the fort at the village. That these villages, however, had no sympathies in common with the mutinous soldiers was evidenced from the fact of their robbing, even to a state of nudity, fugitive soldiers on their way from the Panjab to join the rebel forces at Dehli. Habri, though a Rajput village, was distinguished for good conduct and loyalty under the guidance of intelligent headmen. It may be said generally that the further Nardak showed extreme reluctance to give up the fugitive mutineers from Firozpur or Jalandhar, and positively refused to pay their revenue; and a detachment with some guns under Captain McNeile marched against them. They first attacked Balla, a large and always troublesome Jat village; and "signal chastisement was inflicted in a fight in which scarcely a village in the higher Nardak but had one or two killed or wounded." The Balla people presently redeemed their fault to some extent by giving material assistance in coercing their neighbour Munak. The skirmish had a very good effect upon the country-side; and when Captain McNeile marched upon Jalmana, it submitted at once; while the Asandh people ran away into the jangals, and their village was bombarded and burnt. Heavy fines were realised from the recusant villages. The *lambardars* of Garhi Chhaju paid their revenue into the *tahsil* without its being

* The old Nardak spirit is expressed in a rhyme, which concludes as follows :—

Ek din marliya, pandrah din khaliya
Na karen kheti, na bharen dhand."

Which mean—

We kill one day and eat for fifteen ;
Till no fields, and pay no revenue.

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demanded, and were rewarded by a personal grant which the survivor Ji Ram still enjoys. Sardara, a Jat of Palri, aided some European fugitives from Dehli, and received a revenue-free grant of land in perpetuity. And Kalandar Ali Khan of Panipat gave material assistance, and was rewarded by a pension. On the whole, the district suffered little. The Government treasury and records escaped unharmed and but little of the land revenue remained uncollected. The canal irrigation of the autumn harvest of 1857 was only 3 per cent. less than that of the same harvest in the previous year. In 1858 the numerous village forts which had been built in the times of the Sikhs were dismantled.

Development since annexation.

68. Some conception of the development of the district since it came into our hands may be gathered from Table No. II. It is probable that the figures are not always strictly comparable, their basis not being the same in all cases from one period to another. But they may be accepted as showing in general terms the nature and extent of the advance made. And indeed the advance is not to be tested by figures only. The state of the country when we occupied it has already been fully described in the preceding pages; and the contrast which that state presents with its present condition needs to be emphasized by no comments.

SECTION C.—ADMINISTRATIVE.

Constitution of the district.

69. The district consists of two portions, the administrative history of which was wholly distinct till the year 1862. The older portion includes the Panipat *tahsil* and the Karnal *pargana* of the Karnal *tahsil*; it came to us by conquest, and formed a portion of the Dehli territory, and of the Panipat district of the North-West Provinces. The other portion, consisting of the remainder of the district, came to us by lapse or forfeiture from the protected Sikh chiefs who held it, and formed till 1862 part of the Thanesar district of the Cis-Satlej division of the Panjab. The administrative history of the two is, therefore, entirely distinct, and must be treated separately for each. The land revenue administration of the district is not noticed in this section as it is fully discussed in Chapter V, Section B.

Administrative machinery. Dehli territory.

70. The provinces acquired by the Treaty of Sirji Anjangam were known as the conquered provinces, and with the ceded provinces formed a sub-division of the Bengal Presidency, to which the Bengal Regulations were extended by Regulation VIII of 1805. But Sec. 4 of that Regulation expressly excluded from the operation of the Regulations, past and future, the tract afterwards known as the Dehli territory, which roughly coincided with the present districts of Gurgaon, Dehli, Rohtak, and Hissar, and the Panipat *tahsil* and Karnal *pargana* of this district; and, in fact, consisted of the territory transferred from the North-West Provinces to the Panjab in 1858. The Dehli territory thus constituted was at first placed under a Resident at Dehli, aided by assistants who had no formally defined charges. But as a fact Mr. William Fraser, one of the Assistants, exercised almost absolute authority in these parts, checked only by an unexercised right of appeal to

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Administrative machinery. Dehli territory.

the Resident. A British *Amil* of the name of Rai Sada Sukh was appointed at Karnal. In 1819 the territory was divided into northern, southern, and central divisions, of which the northern consisted of Karnal, Panipat, Ganaur, Gohana, Rohtak, Sunpat, and Mandauti, and was placed in charge of a Principal Assistant. At the same time a Civil Commissioner was appointed at Dehli, who exercised civil, criminal, and revenue functions in subordination to the Resident. In 1820 the Civil Commissioner was abolished, and a Deputy Superintendent appointed in his place, who enjoyed no independent authority, but vicariously exercised the power of the Resident, as his Assistant, and in his courts. In 1822 the Bengal Presidency was divided, the ceded and conquered provinces forming the western province; and a Board of Commissioners of Revenue and Circuit was appointed for these provinces, with its head-quarters at Dehli. The Resident lost his Deputy Superintendent, but became the Chief Commissioner on the Board, and continued to exercise independent political functions as Agent to the Governor-General. In 1824 the divisions of the Dehli territory was split up into the districts of Panipat, Rohtak, Hansi, Riwari, and Dehli. The Panipat district included Karnal, Panipat, and Sunpat, and the remainder of the northern division went to Rohtak. In the same year the Dehli territory was removed from the control of the Board of Revenue collectively, and placed immediately under the Resident and Chief Commissioner, who, however, continued to avail himself of the services of the Board in the transaction of all revenue business. In 1829 Divisional Commissioners of Revenue and Circuit were appointed throughout the Presidency, and the Dehli Commissioner transacted all business in subordination to the Resident.

In 1832 the office of Resident and Chief Commissioner was abolished, a Political Agent to the Governor-General taking his place; and Regulation V of 1832 annexed the Dehli territory to the jurisdiction of the Sadr Board and Courts of Justice at Allahabad, directed that officials should conform to the spirit of the Regulations in the transaction of business, and empowered the Supreme Government to extend any part of the Regulations to that territory. It does not appear that any Regulations were ever so formally extended; but from this date they were practically in force throughout the territory. From that date, too, the Principal Assistant changed his title to that of Magistrate and Collector. In 1835 the Agra Sub-division of the Presidency was erected into a Lieutenant-Governorship, under the name of the North-Western Provinces. In 1841 the Rohtak district was broken up, and *pargana* Gohana added to Panipat; but the alteration was shortly afterwards cancelled, and in 1857, just before the Mutiny, *tahsil* Sunpat was transferred to Dehli. In 1858 the Dehli territory lying on the right bank of the Jamna was transferred from the North-Western Provinces to the Panjab by Government of India Order No. 9 of 9th February, and Act XXXVIII of 1858 repealed Regulation V of 1832, quoted above.

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Administrative subdivisions. Dehli territory.

71. As already noted, every few villages that were held in separate *jagir* were often called a *pargana*, though the individual villages might be miles apart; and the same village was often quoted quite indifferently as being in one or other of two different *parganas*. In fact, there were two concurrent systems of *parganas*, one based upon locality, and the other upon the assignment of the land revenue. In 1806 *pargana* Karnal included 218 villages, and extended to Tiraori. Of these, 14 belonged to the Shamgarh Sardar, 25 had long been held by Kunjpura, and 5 by Jindh. Of the remaining 174 villages we gave 7 to the Kunjpura Nawab for life, and 158 to the Mandals. Of these 158 villages many were mere hamlets, only 63 being separately assessed to Government revenue; and only 93 separate villages are now recognised. The remaining 9 villages, known as the nine *mazras* of Karnal, were wrongfully held by the Sikhs; they were resumed in 1816, and though lying to the north of Karnal, were included in the Panipat *pargana* till 1851. They are now in *pargana* Indri.

In the remainder of the present Karnal *pargana* and in the Panipat *tahsil*, the old division into *parganas* Panipat, Sunpat, and Ganaur was still followed in the *kanungo's* records. Some Jindh villages were added to Panipat in 1816, some Sunpat villages in 1822, and some Ganaur villages in 1836. The Bangar villages were generally known as *pargana* Panipat, and the Khadir villages indifferently as *pargana* Barsat or Chaunsat up to 1830, from which date the two divisions were known as Panipat Bangar and Panipat Khadir. Besides these, we find in the earlier papers mention of *parganas* Jaurasi, Simbhalka, Faridpur, and Balla, which were included in the above, and limits of which cannot be fixed. The boundary between the Khadir and Bangar *parganas* corresponded very nearly with that between the present assessment circles of the same names.

There was originally only one *tahsil* at Panipat; but in 1823, by which date the greater part of the *jagir* land had been resumed, a separate *tahsil* was formed at Barsat for the Khadir villages, the Mandal tract being excluded altogether. There was also a *tahsil* of Ganaur, and one of Sunpat. In 1829 the Khadir *tahsil* was transferred from Barsat to Panipat, the two being distinguished as Panipat Bangar and Khadir. In 1835-36 the boundary between Sunpat and Panipat took its present shape, when Ganaur was absorbed into Sunpat Khadir. In 1851, after the Settlement of the Mandal villages, the territory was divided, as at present, into Karnal and Panipat, with *tahsils* at Panipat and Gharaunda; and Amritpur and Kairwali, now in *pargana* Indri, were received from the Thanesar district in exchange for the nine *mazras* of Karnal which had been transferred to it. In 1854 the head-quarters of the district were moved to Karnal; in 1862 *tahsil* Kaithal and *pargana* Indri were added to the district; and in 1868 the *tahsil* was moved from Gharaunda to Karnal.

Thanesar district.

72. The history of the rest of the district, which was in 1809, when we took the Cis-Satlej chiefs under our protection, parcelled out among various Sikh chiefs and confederacies, has been given

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Administrative History.

Thanesar district.

in Chapter II, B. Kaithal lapsed in 1843, Thanesar in 1832 and 1850, and Ladwa was confiscated in 1846. In 1849 these were formed into a district of the Cis-Satlej States division of the Panjab, having its head-quarters at Thanesar. In 1862, after the transfer of the Dehli territory to the Panjab, the Thanesar district was broken up and distributed between the districts of Karnal and Ambala. The *parganas* of Gula, Pehowa, Kaithal, Indri, and part of Thanesar, fell to this district, the remainder to Ambala; at the same time the Sunpat *pargana* was transferred to Dehli. Six villages were transferred from Muzaffarnagar District to Karnal in 1862 owing to river changes.[1] In 1866 *tahsil* Gula was abolished and *pargana* Pehowa was transferred to the Ambala district; while Chika and Kularan were included in the Kaithal *tahsil*. In 1875 there were further included in the Kaithal *tahsil* 14 villages from the Pehowa *pargana*. Most of the other Pehowa villages have recently been transferred from Ambala to Karnal, while Budlada has been made over to Hissar.[2]

District officers.

73. Below is a list of the officers who have held immediate charge of this district, omitting temporary appointments :—

Panipat or Karnal District.

—	William Fraser	1824	H. H. Thomas
1819	T. T. Metcalfe	1825	Hugh Fraser
1822	Hugh Fraser	1830	Alexander Fraser
1824	George Campbell	1832	Simon Fraser
1834	John Lawrence	1861	Major W. R. Elliot
1836	Alexander Fraser	1863	Major Busk
1840	John Paton Gubbins	1865	Captain Parsons
1841	T. Woodcock	1870	R. W. Thomas
1842	John Lawrence	1873	Captain Harcourt
1843	John Paton Gubbins	1874	Colonel Babbage
1845	Charles Gubbins	1875	Colonel Hawes
1848	Nathaniel Prowett	1876	Colonel Millar
1854	C. R. Lindsay	1878	A. H. Benton
1856	J. P. Macwhirter	1882	Major A. S. Roberts
1857	C. B. Richardes	1883	A. W. Stogdon
1858	R. P. Jenkins	1884	Major A. S. Roberts
1859	C. P. Elliot	1886	J. R. Drummond

Thanesar District.

1843 Major Lawrence, C.B.	1856-57 to 1858-59 Lt. Andrew Busk
1843 Major Leech, C. B.	1859 to 1860 Lt. N. W. Elphinstone
1846 Major S. A. Abbott.	1860-61 Captain Andrew Busk
1846 G. Campbell	1861-62 Major S. F. Graham and Lt. Voyle.
1846 Major S. A. Abbott.	
1847-48 to 1849-50 G. Campbell	
1850-51 to 1855-56 Captain W. H. Larkins	

Many of these names are household words with the villagers, and are quoted daily in the course of business. The following is a glossary which will be found useful:—*Fridan* is Fraser; *Bara*

(1) Two more have since been transferred.
(2) P. G. Notifications Nos. 715 and 716 of 15th December 1886.

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Administrative History.

District officers.

Fridan Sahib is William Fraser. *Hu Sahib* is Hugh Fraser. *Alak Jalandar Sahib* is Alexander Fraser, but is also used for Alexander Skinner. *Jan Patan Sahib* is John Paton Gubbins. *Chalis Sahib* is Charles Gubbins. *Jiras Sahib* is George Ross, who settled the Mandal *pargana* in 1852-56. Captain Larkins is the best remembered of the Thanesar Deputy Commissioners.

Early administration.

74. The early administration of the Dehli territory before the introduction of the regulation law presents so many curious points of contrast with that of our own day, that it will be interesting to give a brief sketch of its most salient features, more especially as in this district alone has the mutiny left untouched the records which described it. The early administration of land revenue is fully discussed in Chapter V. The cantonment of Karnal, which was not moved to Ambala till 1842-43, was for a long time, with the exception of a small military outpost at Ludhiana, our frontier station. Its size may be judged of from the fact that the *monthly* pay of the troops amounted, in 1835, to a lakh-and-a-quarter of rupees. This pay was by no means always forthcoming; the Collector often had to borrow at exorbitant rates from the local money-lenders in order to meet urgent demands for arrears of several months' standing; and as late as 1840 we find the bills dishonoured for want of funds, and troops actually marching on service with some months' pay owing to them.

Criminal administration.

75. The tract was surrounded for the greater part of its border by "the turbulent and marauding Sikhs" of Jindh, Kaithal, Ladwa, and Shamgarh; their territories reaching to within a mile of the cantonment boundaries. Forays and affrays and wholesale raids, in which cattle were carried off by fifties and hundreds at once, were of constant occurrence. The Sikh chiefs exercising sovereign powers had exclusive jurisdiction over their own subjects even for offences committed in British territory, until in 1833 this state of things grew so intolerable that we assumed criminal and police jurisdiction in Ladwa and Shamgarh. The *jagirdars*, whose villages were thickly sprinkled over the tract, gave almost as much trouble as our Sikh neighbours, resisting by force of arms the execution of writs, and harassing the authorities in every possible way. The Mandals were more than once threatened with expulsion from Karnal if they did not become more amenable to authority; and their *jagir* was actually attached in 1830 on account of their contumacious conduct. The whole of the Nardak, and, till the re-opening of the canal extended cultivation, the whole of the Bangar right up to the main road from Dehli, was covered with thick *dhak jangal* which harboured bands of robbers; and criminals always found a ready refuge with our Sikh friends, from under whose wings they had to be reclaimed through the Resident at Dehli and the Superintendent

Chapter II, C.

Administrative History.

Criminal administration.

of Sikh affairs at Ludhiana, till the appointment of *vakils* in 1824 simplified the procedure. The Rajputs of the Nardak were notorious for their turbulence. Session cases were tried at Dehli; and the bodies of criminals executed were left hanging on the gibbets till 1833, when the practice was discontinued. Flogging was abolished in 1825. The track law was rigorously enforced, the village to which the thieves were traced, or even that in which the robbery took place if connivance was suspected, being made responsible for the full value of the stolen property; and though this practice was discontinued on the introduction of the Regulations in 1832, yet the Court of Directors expressly ordered its revival on the ground of the number of feudatory chiefs whose territories bordered on the tract. The police establishment was notoriously corrupt. In 1820 there were only 3,082 prisoners tried in the whole Dehli territory, of which number 2,302 were acquitted or discharged. During the five years from 1828 to 1832 the average number of cases brought into court, excluding assaults, was only 628 for the whole Panipat district. In 1879 the corresponding number for a very little larger population was 1,750. The police duties in large towns were discharged by watchmen, while in villages the people themselves were responsible for them, and for the *jagir* holdings the police were furnished by the *jagirdars* themselves. There were no head-quarters to the district till 1827, and the Magistrate was always moving about and carrying his jail with him, the prisoners sleeping in the open under nothing but a guard. The roads were said to be impassable for man or horse in the rains generally, and near the canal or river at all seasons; while at the best of times reports took four days to traverse the greatest length of the district. There was no road-cess, and such repairs as were made were done by prisoners. The road-cess was not imposed till 1842, and the Grand Trunk Road was not made till 1847.

Civil administration.

76. Civil suits were tried solely by the Sadr Amin at Panipat, who, after eight years of service, was discovered to refuse on principle to admit the evidence of a Hindu against a Muhammadan, though he admitted that of the latter against the former, and who justified his practice by reference to the Muhammadan law, by which he considered himself bound. The language of the courts was Persian up till 1836, no suits against Government were admitted in the courts of the Dehli territory, and no stamps were taken on petitions till, in 1830, Regulation X of 1829 was extended to the courts by proclamation. Sale of land was not permitted without the consent of the whole village, save with the express sanction of the Governor-General in Council.

Government coins were not current in the district, the copper coins being "received with reluctance"; while the reason given for moving the *tahsil* from Barsat to Panipat in 1829 was, that the larger towns afforded greater facilities to the people for exchanging the current coins in which they were paid for their crops for the

Chapter II, C.

Administrative History.

Civil administration.

Government rupees in which alone the revenue could be paid. In 1833 the Government, "in order to afford revenue-payers relief "from the arbitrary exactions to which they were subject at the "hands of money-changers in paying revenue," fixed rates of discount at which the ten sorts of country rupees then current would be received in payment of revenue, in the conviction that "the measure would greatly benefit the agricultural classes." Education had "steadily deteriorated since the introduction of our "rule;" and in 1826, of the 12 schools, nominally existing in the whole tract, those of Karnal, Gharaunda, Dhansauli, and Naultha were the only ones attended by more than two or three children. These were all supported by private enterprise, and were all bad alike. There were no dispensaries in the district till 1843, when it was proposed to establish them on account of the terrible epidemic.

Customs and Excise.

77. Every petty chief in the neighbourhood levied innumerable transit dues on the traffic through his territory. This pernicious system was adopted by us also, even to the extent of allowing every little *jagirdar* to levy these dues in his own villages. The customs line, established under the regulations on the left bank of the Jamna, lay wholly to the east of the territory; and the result was that "a vast multitude of custom-house officers were scattered "broadcast over the country, making collections in every town, "and apparently in every considerable village, on almost every "article of traffic." Payment of these dues did not exempt the goods from duty at the regular customs line; so that goods passing across the Jamna into the regulation provinces had to pay double duty. In 1823 the whole customs machinery west of the Jamna was abolished, and posts were retained only at the ferries, which were about three miles apart. At the same time the dues were assimilated to those leviable under Regulation IX of 1810, and one payment freed goods for all British territory. But this change involved the relinquishment of the customs revenue upon the whole of the trade between the Rajputana and the Sikh territory—a revenue which averaged some five *lakhs* annually. Accordingly, in 1828, a second customs line was established on the Western Jamna Canal. But the posts on both lines were in charge of *muharrirs* on Rs. 7 a month; and the amount of embezzlement was inconceivably great. Smuggling, too, was practised to such an extent that in 1833 it was estimated that not one-sixth of the salt passing through the district had paid duty. In 1834 the "irritating and exasperating interference with trade" practised by the customs officials was seriously commented upon, and all petty traffic was wholly exempted. And when the neighbouring Sikh territory became ours in 1843, the customs line was finally removed from the vicinity of Karnal. Such chiefs, however, as remained independent, continued to levy their own dues until we deprived them of their powers after the Sikh war, when the Nawab of Kunjpura was compensated for the loss of his customs revenue by a yearly payment from the Treasury.

Chapter II, C.

Administrative History.

Customs and Excise.

Besides Imperial customs, octroi was levied in Karnal and Panipat at *ad valorem* rates varying from 5 to 10 per cent. upon all grains, pulse, sugar, oil, oilseeds, *ghi*, tobacco, firewood, charcoal, salt, and spices within three miles of the town; and these dues formed a part of the Imperial revenue till 1823, when grain of all sorts was exempted, and the revenue was devoted to local improvements under the management of a municipal committee. The annual net revenue thus realised in Panipat averaged some Rs. 3,000. The present octroi revenue of that town is about Rs. 20,000. A further tax of 6 per cent. on the value of all houses or land sold or mortgaged within the walls of Panipat and Karnal was levied till 1823, when this and a host of other arbitrary exactions, of which no detail is forthcoming, were finally abolished.

CHAPTER III.

THE PEOPLE.

SECTION A.—STATISTICAL.[1]

Chapter III, A.

Statistical.

Distribution of population.

78. Table No. V gives separate statistics for each *tahsil* and for the whole district, of the distribution of population over towns and villages, over area, and among houses and families; while the number of houses in each town is shown in Table No. XLIII. The statistics for the district, as a whole, give the following figures, and further information will be found in Chapter II of the Census Report of 1881:—

Percentage of total population who live in villages	Persons		87·42
	Males		88·10
	Females		86·62
Average rural population per village			635
Average total population per village and town			721
Number of villages per 100 square miles			36
Average distance from village to village, in miles			1·79
Density of population per square mile of—	Total area	Total population	260
		Rural population	227
	Cultivated area	Total population	536
		Rural population	513
	Culturable area	Total population	319
		Rural population	279
Number of resident families per occupied house	Villages		1·68
	Towns		2·04
Number of persons per occupied house	Villages		9·41
	Towns		7·50
Number of persons per resident family	Villages		5·59
	Towns		3.68

Density of population.

79. The following statement shows the density of population on total and cultivated areas:—[2]

1	2	3	4	5	6
Tahsil.	Total area in square miles.	Total population.	Number of persons to the square mile.	Cultivated area in square miles.	Number of persons to the square mile of cultivation.
Karnal	832	231,094	278	335	689
Panipat	458	186,793	408	249	750
Kaithal (corrected)...	1,289	227,332	176	570	399
Total ...	2,579	645,219	250	1,154	559

(1) The figures in Chapter III, except where the contrary is noted, relate to the district as constituted in 1884, when the first edition of the Gazetteer was published. The insertion of "corrected" in brackets after Kaithal indicates that the figures given for that *tahsil* relate to the *tahsil* as now constituted, the figures for area being taken from the returns of the recent settlement. The Budlada villages transferred in 1889 from Kaithal to the Hissar District had in 1881 a population of 11,921 souls. The Pehowa villages transferred from the Ambala District to Kaithal in 1889 had in 1881 a population of 34,519 souls.

(2) In column 5 the cultivated area entered is taken from Statement III appended to the Revenue Report of 1888-89 in the case of Panipat and Karnal, and from the Settlement returns in the case of Kaithal.

Chapter III, A.

Statistical.

Density of population.

The density of population is 250 per square mile on the total area, and 559 on the cultivated area for the whole district. The density is greatest in Panipat, *viz.*, 408 and 750, as we might expect, seeing that half of the *tahsil* is Khadir, where scarcely any land is uncultivated, and that the rest of the *tahsil* is irrigated by the canal and abundantly supplied with wells. The rain-fall is also little short of that for Karnal. The Karnal *tahsil* comes next with 278 and 689. The Khadir of Karnal is similar to that of Panipat; the rain-fall is slightly larger; a much smaller area is under canal irrigation; but the chief cause of the difference, as compared with Panipat, is that of the tract called the Nardak, which includes nearly half of the *tahsil*, ⅗ is waste land, and the remainder is badly provided with wells and badly cultivated by the population, chiefly Rajputs. There is also a considerable population of Saiyids and Gujars who are bad cultivators. Elsewhere throughout the district the industrious Jats, Rors, Rains, and the like are well mixed up with the less industrious Rajputs, Gujars, Brahmans, &c. Kaithal comes last with the 176 and 399 for the total and cultivated areas respectively. The rain-fall is only 18 inches; there is only canal irrigation in 13 villages, well irrigation is impossible throughout one-half of the *tahsil*, and the dry crops are very precarious.

Distribution over houses and families.

80. In the district report on the census of 1881 the Deputy Commissioner wrote :—

"I believe the general custom both among Hindus and Muhammadans is for several families, the heads of which are brothers, to live together so long as their father is alive, and to separate at his death. Of course, the rule is subject to very many exceptions, but the cases of such families being united are much more numerous than the cases of separations. The separation is of course effected in the most convenient way. The building occupied by the household will be divided, if that be easily possible, or an addition or additions may be made in the same enclosure, or may have been made from time to time during the father's life-time, if sons with their families separated before their father's death. Thus we may come to find 4 or 5 brothers with their families living in separate buildings in the same enclosure. Some of these may become vacant in course of time owing to the contingencies of life, and relations may be allowed to occupy them, or they may be let to persons of an entirely different caste. The practice has thus grown up of different families, having little or nothing in common, living together in houses arranged generally in quadrangular form round a common court. It has the advantage of providing in a very economical way some free space off the street which can be used by a number of families without much inconvenience, and the members of the different families are in a position to render each other protection. It is also quite common, at any rate in the towns, for a man who has some spare capital to invest it in house property by building a number of houses around a quadrangle, merely with a view to letting them."

Migration and birth-place of population.

81. Table No. VI shows the principal districts and States with which the district has exchanged population, the number of migrants in each direction, and the distribution of immigrants by

Chapter III, A.

Statistical.

Migration and birth-place of population.

tahsils. Further details will be found in Table No. XI and in supplementary Tables C to H of the Census Report for 1881; while the whole subject is discussed at length in Part II of Chapter III of the same report. The total gain and loss to the district by migration is shown in the margin. The total number of residents born out of the district is 98,136, of whom 34,439 are males and 63,697 females. The number of people born in the district and living in other parts of the Panjab is 87,243, of whom 33,273 are males and 53,970 females. The figures below show the general distribution of the population by birth-place :—

Proportion per mille of total population.	Gain.	Loss.
Persons	158	140
Males	102	99
Females	222	189

Born in	Proportion per mille of Resident population.								
	Rural population.			*Urban population.*			*Total population.*		
	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.
The district ...	907	779	849	832	772	802	898	779	842
The province...	971	949	961	910	901	906	964	943	954
India ...	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

The following remarks on the migration to and from Karnal are taken from the Census Report :—

"Here again the migration is largely reciprocal, while the attraction exercised by the riverain and canal tracts has caused the immigration largely to exceed the emigration, both being almost wholly confined to tracts which march with the district, and immigration being most in excess from those districts which have the smallest common frontier. The percentage of males is always larger among emigrants than among immigrants, which seems to point to the immigration being more largely of the permanent type than is the emigration. The extensive emigration into Rohtak and the Native States is largely due to the havoc caused by saline efflorescence in parts of the canal tract."

Increase and decrease of population.

82. The figures in the statement below show the population of the district as it stood at the three enumerations of 1853, 1868 and 1881. The first of these was taken in 1853 for so much of the district as then formed a portion of the North-Western Provinces (*see* Chapter II, Section C), and in 1855 for the remainder of the district, which was under the Panjab Government :—

Chapter III, A.

Statistical.

Increase and decrease of population.

	Census.	Persons.	Males.	Females.	Density per square mile.
Actuals.	1853 ...	...	...	...	231
	1868 ...	617,997*	334,655	283,342	260
	1881 ...	622,621	336,171	286,450	260
Percentages.	1868 on 1853...	...	...	...	113
	1881 on 1868...	100·75	100·45	101·13	100

Unfortunately the boundaries of the district have changed so much since the Census of 1853 that it is impossible to compare the figures; but the density of population as then ascertained probably did not differ much over the two areas. It will be seen that the annual increase of population per 10,000 since 1868 has been 3 for males, 9 for females and 6 for persons, at which rate the male population would be doubled in 1,993·6 years, the female in 800·4 years, and the total population in 1,212·9 years. Supposing the same rate of increase to hold good for the next ten years, the population for each year would be in hundreds—

Year.	Persons.	Males	Females.	Year.	Persons	Males.	Females.
1881 ..	622,6	336,2	286,5	1887 ...	624,8	336,9	288,0
1882 ...	623,0	336,3	286,8	1888 ...	625,1	337,0	288,3
1883 ...	623,3	336,4	287,1	1889 ...	625,5	337,1	288,5
1884 ...	623,7	336,5	287,3	1890 ...	625,8	337,2	288,8
1885 ...	624,1	336,6	287,6	1891 ...	626,2	337,3	289,0
1886 ...	624,4	336,7	287,8				

Nor is it impossible that the rate of increase will be sustained or even become greater in the future. Part, indeed, of the increase is probably due to increased accuracy of enumeration at each successive enumeration, a good test of which is afforded by the percentage of males to persons, which was 55·00 in 1853, 54·15 in 1868, and 53·99 in 1881. Part again is due to gain by migration, as already shown at page 57. The excavation of the Sirsa Canal will render a considerable expansion of population possible in the S. of Kaithal.

The urban population since 1868 has not increased like the rural population, the numbers living in 1881 for every 100 living in 1868 being 92 for urban and 101 for total population. This is probably due to the abolition of the stud at Karnal and to the un-

* According to present constitution of the district the figures in column 3 should be for 1868 644,096, and for 1881 645,219, the incidence per square mile in both years being 250.

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Statistical.

Increase and decrease of population.

healthiness of the towns of Panipat and Karnal. The populations of individual towns at the respective enumerations are shown under their several headings in Chapter VI.

The fluctuations of population by *tahsils* is shown below:—

Tahsil.	1868.	1881.	Percentage of population of 1881 on that of 1868.
Karnal	240,322	231,094	96
Panipat	184,230	186,793	102
Kaithal (corrected)	219,544	227,332	104
Total	644,096	645,219	100

The growth of population between 1868 and 1881 was therefore quite insignificant.

Further details can be given regarding the part of the district, ⅔rds of the whole as far as area is concerned, which down to 1862 formed part of the Thanesar district. The figures given below are taken from returns prepared at the recent settlement:—

Tract.	Assessment Circles.	Census. 1855. Number.	1855. Per square mile of cultivation.	1868. Number.	1868. Percentage of population of 1868 on that of 1855.	1881. Number.	1881. Percentage of population of 1881 on that of 1855.	1881. Per square mile of cultivation.
Indri Pargana.	Khadir ...	49,838	597	54,208	108	51,613	104	538
	Bangar ...	35,430	625	34,417	97	34,651	98	541
	Nardak ...	21,622	611	25,310	117	23,861	110	514
	Total ...	106,890	578	113,930	107	110,125	103	534

Increase and decrease of population.

Tract.	Assessment Circles.	Census. 1855. Number.	1855. Per square mile of cultivation.	1868. Number.	1868. Percentage of population of 1868 on that of 1855.	1881. Number.	1881. Percentage of population of 1881 on that of 1855.	1881. Per square mile of cultivation.
Kaithal Tahsil.	Powadh ...	14,464	446	15,812	110	15,831	110	466
	Andarwar ...	10,953	716	11,169	102	11,361	104	597
	Naili, including 8 villages of Southern Chachra Circle ...	56,575	658	59,640	105	55,182	98	465
	Southern uplands, including Kaithal Nardak and Bangar and Pehowa Bangar	109,179	517	132,843	122	144,958	133	354
	Total ...	191,171	554	219,464	115	227,332	119	399

The increase of population between 1855 and 1881 in Indri shown on page 70 is not real. The figures of the first census do not include the population of 7 estates received by transfer from Muzaffarnagar and of 3 villages which formerly belonged to the Panipat *tahsil.* Allowing for this the number declined by 1½ per cent. between 1855 and 1881. The population of Indri is as large as the *pargana* with its present resources can well support. The tract is on the whole an unprosperous one and in years of heavy rainfall the mortality from fever is very great. In Kaithal the Powadh and Andarwar circles are healthy. But they are fully cultivated and fully populated, and little further expansion is to be expected or desired. In the unhealthy Naili population has declined. In the healthy southern uplands, where there was abundant room in 1855 for extension of cultivation, population has increased with great rapidity, but the growth of the cultivated area has been far more rapid. Excluding this tract the population of the whole district shows a falling off of nearly 2 per cent. between 1868 and 1881.

Immediately after the Census of 1868 had been taken, the district was visited by a severe famine.* It was reported at

* See para. 33.

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Increase and decrease of population.

the time that no deaths had occurred from starvation; but the decrease in the number of cattle, the necessary impoverishment of the people, and the injury to health from deficient food no doubt had an important effect both in sterilizing the population and in keeping down the cultivated area.

A similar calamity, somewhat less severe, occurred in 1877-78.* In 441 out of 927 villages in which revenue had to be suspended, inquiries showed that 82,280 head of cattle, many of them plough bullocks, perished, and the loss was only somewhat less severe elsewhere. There was no mortality from starvation, and the mortality generally was, probably, less than usual in those years of drought and scarcity; but owing to the poor diet and hardships suffered, the people fell a prey in large numbers to a fever epidemic in the end of 1879. It cannot be doubted that all this must have had an important effect in keeping down the population and the cultivated area.

Owing to the faulty alignment of the old Western Jamna Canal and the wasteful system of irrigation pursued by the people large tracts became waterlogged. The insanitary conditions thus produced led to widespread disease and sterility in the canal tracts of Panipat and Karnal, and the floods of the Sarusti, Ghagar, and Umla have caused the same evils in the Kaithal Naili. But Karnal and Panipat are already fully populated, and the result of the improvements in drainage now being carried out by the Canal Department will probably be more apparent in an improvement in the physique of the people than in an increase in their numbers.

Births and deaths.

83. Table No. XI shows the total number of births and deaths registered in the district for the twelve years from 1877 to 1888, and the births for the nine years, 1880 to 1888. The distribution of the total deaths and of the deaths from fever for these twelve years over the twelve months of the year is shown in Tables Nos. XIA and XIB. The annual birth-rates per mille, calculated on the population of 1881, are as shown in the margin.

Detail.	Average of	
	1880-83.	1884-88.
Males ..	21·5	21·6
Females ..	18·2	19
Persons ..	39·7	40·6

The figures below show the annual death-rates per mille between 1868 and 1878 calculated on the population of 1868:—

Detail.	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878	Average.
Males ...	14	23	26	22	23	19	21	22	22	22	46	24
Females ...	11	20	22	19	21	17	19	20	20	20	42	21
Persons ...	13	22	24	21	22	18	20	21	21	21	44	22·5

The table below gives the corresponding figures for the ten years ending with 1888 calculated on the population of 1881.

* See para. 33.

Increase and decrease of population.

Detail.	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	Average.
Males ...	59	39	36	32	30	54	39	34	51	35	41
Females ...	57	35	34	31	29	58	39	34	52	34	40
Persons ...	58	37	35	32	29	56	39	34	51	34	40·5

The figures for the period 1868-1878 are no doubt very imperfect. Comparing the statistics of births between 1880 and 1888 with those for deaths between 1879 and 1888 we find that the average death rate is almost exactly the same as average birth-rate. This is due to the large number of deaths from fever which occur year by year. The only other districts in the province which suffer as severely from this cause are Dehli and Gurgaon. Virulent outbreaks of fever due to excessive autumnal rains in 1879, 1884, and 1887, account for the extraordinary mortality of these years. The only remedy is drainage of the waterlogged tracts. This is now being carried out as regards the part of the district watered by the Western Jamna Canal, but as yet nothing has been done for the tract flooded by the Umla, Ghagar, and Sarusti, where disease is equally rife.

The registration is still imperfect, though it is probably improving. The historical retrospect which forms the first part of Chapter III of the Census Report of 1881, and especially the annual chronicle from 1849 to 1881, which will be found at page 56 of that report, throw some light on the fluctuations. Such further details as to birth and death-rates in individual towns as are available will be found in Table No. XLIV, and under the headings of the several towns in Chapter VI.

Age, sex, and civil condition.

84. The figures for age, sex, and civil condition are given in great detail in Tables Nos. IV to VII of the Census Report of 1881, while the numbers of the sexes for each religion will be found in Table No. VII appended to the present work. The age statistics must be taken subject to limitations, which will be found fully discussed in Chapter VII of the Census Report. Their value rapidly diminishes as the numbers dealt with become smaller; and it is unnecessary here to give actual figures, or any statistics for *tahsils*. The following figures show the distribution by age of every 10,000 of the population according to the Census figures :—

	0—1	1—2	2—3	3—4	4—5	0—5	5—10	10—15	15—20
Persons ...	321	150	150	229	264	1,114	1,296	1,169	986
Males ...	307	142	145	214	256	1,064	1,305	1,250	1,040
Females ...	336	160	157	246	273	1,172	1,286	1,072	923
	20—25	25—30	30—35	35—40	40—45	45—50	50—55	55—60	over 0
Persons ...	999	932	837	480	706	327	512	148	493
Males ...	997	931	813	474	654	341	502	159	468
Females ...	1,002	932	864	488	766	310	523	136	523

Chapter III, A.

Statistical.

Age, sex, and civil condition.

The number of males among every 10,000 of both sexes is shown below. The decrease at each successive enumeration is almost certainly due to greater accuracy of enumeration :—

Population.			Villages.	Towns.	Total.
All religions	...	1855	...	...	5,500
		1868	...	...	5,415
		1881	5,441	5,107	5,399
Hindus	...	1881	5,461	5,191	5,437
Sikhs	...	1881	5,559	...	5,605
Jains	...	1881	5,472	4,951	5,347
Musalmáns	...	1881	5,366	5,007	5,281

In the Census of 1881, the number of females per 1,000 males in the earlier years of life was found to be as shown in the margin.

Year of life.	All religions.	Hindus.	Musalmans
0—1	935	930	948
1—2	956	248	1,010
2—3	925	917	950
3—4	981	...	...
4—5	907	...	...

The figures for civil condition are given in Table No. X, which shows the actual number of single, married, and widowed for each sex in each religion, and also the distribution by civil condition of the total number of each sex in each age-period.

Proportions between the sexes.

85. The Deputy Commissioner (Mr. Benton) wrote as follows in his Census Report for the district :—

"Both Hindus and Muhammadans show a more even proportion of males to females everywhere in the towns than in the villages, and the Muhammadans everywhere both in towns and in villages show a larger female population than the Hindus. The Sikhs are in considerable numbers in the villages of Karnal and Kaithal, and there the proportions between the sexes show no marked difference from those of the Hindus. Statements so general in their character with regard to the members of the Hindu and Muhammadan religions and Sikh religion, wherever they are in sufficient numbers to justify remarks, cannot be the result of accident, and neither can it be accident that the proportions for the last Census should so nearly correspond to those of this.

"In addition to the authorities cited on the disproportion of the sexes by Mr. Plowden in the North-Western Provinces Census Report, the only authority with which I am acquainted is 'Darwin on the Descent of Man, pages 242 to 260, Ed. 1874.

"With regard to disparity between the ages of the males and the females, if it be an effective cause, it no doubt exists. By working out the average ages of males and females, by taking the ages of all included within any period in the returns as if the middle of the period were their proper age, and with regard to those over 60, taking them all as 65 years of age, I find the average age for married males 33·48, and that for females 29·00.

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Statistical.

Proportions between the sexes.

For Hindus these averages are 33·54 and 28·87, while for Muhammadans they are 35·6 and 29·50, the difference being 5·56 as against 4·67 for Hindus. This is an altogether unexpected result, it being generally supposed that as cohabitation is postponed for 4 or 5 years longer in the case of Muhammadans, the ages of the husband and wife were more nearly equal than in the case of Hindus. Seeing a state of equality between the sexes more nearly obtains among the Muhammadans than among the Hindus, this would appear to indicate that if disparity of ages be an effective cause there must be some other force in operation which depresses the Hindu proportion of females to males in towns and villages, and yet allows the Muhammadans with greater disparity of ages to have a much more equal proportion everywhere. Infanticide or ill-treatment of females practised at the present time, with a hereditary tendency developed by their practice in bygone times, would serve to explain the results. Muhammadans, having all of them a good deal of Hindu blood in their veins, if not wholly Hindus, would not escape the taint of these vices or of their accumulated effects if they be not now practised; but the results would be very much diminished, and great disparity between different castes, which intermarry only amongst themselves and preserve their own habits and usages, would be matter of no astonishment."

Infanticide.

86. "With regard to a hereditary tendency to produce males, I consider that the conditions necessary to establish it are still in existence to some extent. There is no doubt that infanticide, if not general, still exists. We have a police post established at Keorak* for its prevention, and there are good reasons for suspecting three more villages to be guilty of the practice. The persistent difference between towns and villages, although the towns are to a large extent inhabited by an agricultural population in no respect different from that of the villages, the more favourable proportion for Muhammadans generally, even with disparity of years against them, especially when compared with those of the same caste who are still Hindus, lead to the conclusion that infanticide still prevails among the agricultural population to a much larger extent than could have been imagined. There are strong motives for getting rid of a super-abundant family of daughters. Although in most castes a price can be got for a bride, still, where the price is highest, the up-bringing of daughters must be a considerable loss, looking at the matter as one of pure profit and loss; and to men of respectability, who wish to marry their daughters in accordance with the prevailing customs, a large family of daughters is universally declared to be a ruinous misfortune.

Treatment of female children.

87. "It is admitted on all hands that there is a difference between the treatment of male and female children, but it is not admitted that this difference is of a character to cause the destruction of the latter. The total effect, however, of a prevailing feeling more favourable to males than females may not be incon-

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* Matters have probably improved at Keorak, which is a large Gujar village. A census of male and female children, recently taken unexpectedly by the Deputy Commissioner, did not disclose any suspicious disparity in the proportions of the sexes. The late Deputy Commissioner, Mr. Drummond, suspected that infanticide was practised in the Rajput estate of Pharal, and I have heard it asserted that it exists in the great Jat village of Chika.—J.M.D.

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siderable even if it does not go the length of criminality. It is, however, sufficient for the purpose of establishing a hereditary male-producing tendency if female infanticide prevailed in former ages, and of this I suppose there is no doubt whatever.

Polyandry and polygamy.

88. "We know of course that there is no polyandry * here, and that polygamy does prevail to a very slight extent. This is not the conclusion, however, that we should arrive at from the returns. From them we learn that there are in the district 2,574 more married males than married females, although we should have had a slight excess of females to be accounted for by polygamy. I am somewhat at a loss for an explanation of this result. I believe it may be due to the fact that we had a native regiment passing through, which contained 698 males, many of whom may have been married; and that there may be a good many Government servants, Police and others, residing in the district who have their wives elsewhere. The people of the district are of a stay-at-home character, and do not like going on service elsewhere. I was impressed by this feature while trying to get men for service with the troops during the war in Afghanistan. Consequently the deficiency of married females, due to residents of other districts being temporarily settled here, would not be compensated by natives of this district temporarily residing elsewhere, and leaving their wives behind them. I observe that there is a larger percentage of married females in the towns of Panipat and Kaithal than anywhere else. A good many people in both these towns are educated and employed on service elsewhere. They may have left their wives behind them; this is the probable explanation.

Widows and widowers.

89. "The percentage of widows to the whole of the females is in each case considerably larger in the towns than in the villages, and the number of widowers varies from about a half to something short of a third of the number of widows in different places. These differences are to be explained by the restrictions on widow marriage. Banias, Brahmans, and other high castes who forbid widow marriage prevail in the towns and keep up the percentage of widows. The Rajputs also forbid widow marriage and they keep up the percentage wherever they prevail. There are very few in the villages of Panipat *tahsil*, and there the number of widows is smallest, *viz.*, 15·51 per cent.; Kaithal, where they are not very numerous, follows with 15·71; and Karnal villages, where they are very numerous, is highest with 17·99. The percentages in Panipat, Kaithal, and Karnal towns are 17·38, 18·74 and 22·73 respectively. The small percentage of widows in Panipat villages partly accounts for a larger percentage of married males and females than anywhere else.

Summary.

90. "To sum up, the Saraogis marry earlier than the members of any other religion. The Hindus come after them in this respect, then the Muhammadans, and the Sikhs marry latest of all. Notwithstanding we find that the average disparity of ages between husband and wife, which is about 4½ years for Hindus, is nearly a year more for Muhammadans. Although polygamy exists to a small extent, there is found to be an excess

* Possibly an exception must be made in the case of some of the outlying Powadh villages near the Ludhiana district.—J.M.D.

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Statistical.

Summary.

of married men over married women, which is attributable to the stay-at-home character of the population, which prevents married males going on service elsewhere leaving their wives behind; while males from other districts come here without their wives. Disparities are observed in different localities as to the percentage of widows and widowers, which depend on the usages of the population in those places as to the marriage of widows. The usual disproportion between the sexes is observed. The males are in the proportion of 53·99 to 46·01 females. The disproportion is larger in the towns than in the villages, and larger among the Muhammadans as a whole than among the Hindus. The Hindu agricultural population shows most unfavourably. With a few trivial exceptions, the high caste Muhammadans show best, and the *Mahajan* caste is on an equality with them. The disproportion may be due partly to climate and partly to disparity of ages between the sexes, but these cannot be the only causes, as the disparity is less in the case of Muhammadans who show a larger proportion of males, and these causes do not account for the differences shown by different castes. It is necessary to postulate some other cause. An inherited tendency to produce males caused by female infanticide practised in the past, if not also in the present, and by female ill-treatment still prevailing, would satisfactorily account for all the phenomena."

Infirmities.

Infirmity.	Males.	Females.
Insane ..	5	3
Blind ..	66	81
Deaf and dumb	5	3
Lepers ..	5	..

91. Table No. XII shows the number of insane, blind, deaf-mutes, and lepers in the district in each religion. The proportions per 10,000 of either sex for each of these infirmities are shown in the margin. Tables Nos. XIV to XVII of the Census Report for 1881 give further details of the age and religion of the infirm.

European and Eurasian population.

92. The figures given below show the composition of the Christian population, and the respective numbers who returned their birth place and their language as European. They are taken from tables Nos. IIIA, IX and XI of the Census Report for 1881 :—

	Details.	Male.	Females.	Persons.
Races of Christian population.	Europeans and Americans... ...	20	16	36
	Eurasians	...	1	1
	Native Christians	24	24	48
	Total Christians	44	41	85
Language.	English	21	17	38
	Other European languages ...	...	...	...
	Total European languages ...	21	17	38
Birth-place.	British Isles	12	6	18
	Other European countries... ...	...	...	...
	Total European countries ...	12	6	18

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Social Life.
European and Eurasian population.

But the figures for the races of Christians, which are discussed in Part VII of Chapter IV of the Census Report, are very untrustworthy; and it is certain that many who were really Eurasians returned themselves as Europeans.

SECTION B.—SOCIAL LIFE.

The homestead and the homes.

93.* When a new village is founded, the first thing done is to dig out tanks to hold rain-water for the cattle, washing, &c. The village is then built on the spoil; and, as in course of time old houses fall down and new ones are built, the village is raised high above the surrounding plain; in some of the old Nardak villages as much as 150 or 200 feet. The space immediately around the village is called *gora;* and here the cattle stand to be milked, weavers train their warp, fuel is stacked, dung-hills made, ropes twisted, sugar presses erected, and all the operations conducted for which free space is necessary. The village is generally surrounded by a mud-wall and ditch as a protection against thieves, and is entered by gates, often of brick, and containing side-rooms in which the gossips sit when it grows hot under the huge *bar* tree or *pipal* which generally stands just outside. Main streets (*gali*) run right through from one gate to another; and in Rajput and other villages where the women are strictly secluded, numerous blind alleys (*bagar*) lead from them, each being occupied by the houses of near relations. In other villages the alleys run right through. The proprietors, Banias, and Brahmans, live in the centre; the menials on the outskirts of the village. The houses are usually of adobe, except in the Nardak and Naili circles and in the older villages where brick is common; the change bearing patent evidence to the tranquility which we have substituted for anarchy. At two or three commanding positions are common houses (*paras, chopal,* and in Kaithal *chopar, hathai*) belonging to the wards of the village. In Kaithal these buildings are often imposing structures. There will also be a few *baithaks* or sheds for gossiping in, and many cattle pens scattered about the village.

Entering the street door of a private house you pass into the outer room or *dahliz,* beyond which you must not go without permission, and where your friend will come and talk. It is often partly occupied by some calves. Beyond this is the yard (*chauk* or *angan*), separated from the streets by a wall, and in which the cattle are tied up in cattle sheds (*bara*), and the women sit and spin. Round this are the houses occupied by the various households of the family. In front of each is a room with the side towards the yard open (*dalan* or *tamsal*) which is the family living-room. On either side of this will be a *sidari* or store-room and a *chatra* or cooking place, which is kept scrupulously clean, with its *chhula* or hearth, but sometimes part of the *chauk* is roofed in, and the cooking is then done there in the hot weather;

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* Paras. 93 to 95 are taken from Mr. Ibbetson's Settlement Report. I have made a few alterations in the text and added some notes.—J.M.D.

The homestead and the homes.

there is often an inner room beyond called *obri* or *dobari* if with two doors, and *kota* or *kotri* if with one only. Upstairs is the *chaubara*, where the husband and wife sleep; while the girls and children sleep downstairs, and the boys in the *chopal*, the *dahliz*, or the cattlesheds.[1]

There will be some receptacles for grain (*kothi* or *chaursia*)[2] made of rings of adobe built up into a cylinder. This has a small hole in the bottom, out of which the grain runs, and keeps always full a small receptacle (*aina*) open in front, from which it is taken as wanted. There will be some ovens (*bharala, hara*) for warming milk; there will be recesses in the wall to act as shelves (*pendi*),[3] one or two swinging trays or rope rings for water vessels; some nets (*jali*) for carrying *bhusa*; a few bedsteads (*manja, khat*) made of wooden frames covered with netted string; a few small stools (*pira, pida, khatola*) of identical construction; a few small low wooden tables (*patra*); and some large baskets to store clothes in (*pitar*). There will be some small shallow baskets (*dalri*) for bread and grain; and some narrow-mouthed ones (*bijri*) to keep small articles in. One should be able to tell the number of married women in the house by the number of handmills (*chakki*).

The Hindu's utensils are made of brass, and perhaps a few of bell-metal (*kansi*); the Muhammadan substitutes copper for brass, which he does not use.

The earthen vessels used by Hindus are usually ornamented with black stripes (*chitan*); but Musalmans will not eat from vessels so marked, because the *ghara* full of water given to a Brahman (*mansna*) on *Ekádshi* after religious ceremonies by Hindus must be striped, and therefore the markings are supposed to be specially Hindu. Of course the metal vessels are expensive; but the remaining furniture of an ordinary village house costs very little. The string of the bedsteads is made at home; while the carpenter makes the furniture, and the potter supplies the earthen vessels as part of their service[4].

Daily life.

94. The day of twenty-four hours is divided into eight *pahrs* or watches, four of day counting from dawn, and four of night. Each *pahr* is divided into eight *gharis*. The dawn is called *pili-phati*, the early morning *tarka*, the evening *sanj*. The daily life of the ordinary able-bodied villager is one of almost unremitting toil. He rises before dawn, eats a little stale bread, gets out his bullocks, goes to the fields, and begins work at once. About 8

(1) A man whose son is married often surrenders the *chaubara* to him, and sleeps himself in the *chopal* or in an outbuilding, even though his own wife is still alive.

(2) The *kothi* is sometimes square with a wooden door, and is then used for storing clothes. A small *kothi* for grain is called a *kuthla* or (in the "*Jangal des*") *parola*.

(3) A wooden shelf for clothes, etc., reached by a ladder is called *tand* and an earthen ledge (*tandi*) a foot high, with apertures for the vessels of pottery, sometimes runs along the foot of the wall.

(4) For a list of brass and earthen vessels in daily use see Mr. Ibbetson's Settlement Report, paras. 301-302.

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Daily life.

o'clock his wife or a child will bring him a damper,[1] often stale, and a bowl of butter-milk or milk and water (*lassi pakki* or *kachchi*). At noon he has a hearty meal of fresh damper and a little pulse boiled with spices (*dal*), or some boiled vegetable (*sag*);[2] in the cold weather this is brought to him in the field; in the hot weather he goes home for it, and does not begin work again till 2 P. M. In the evening he comes home, and after feeding his cattle eats his dinner, the grand meal of the day. His wife will have pearled some *jowar* and soaked it in the sun till it has swelled (*khata ana*) and then boiled it in milk (*rabri*); or she will have dry-boiled some whole grain and pulse mixed (*khichri*), or made a porridge of coarsely ground grain (*dalia*), or boiled up glutinous rice into a pink mass (*chawal*), or made a rice-milk of it (*khir*). There will be a little pease pudding (*dal*), or the pulse will be boiled with butter-milk and spices (*jholi, kadhi*) and some pickles (*achar*) or rough *chatni*, or some vegetable boiled with salt and *ghi* as a relish. After his meal he goes out for a smoke and a chat to the *chopal*, or under the *bar* tree outside the village.

The grain generally used in the hot weather is a mixture of wheat, barley, and gram,[3] or any two of them, generally grown ready mixed: in the cold weather, *jowar* and maize[4]. Unmixed wheat is seldom eaten, as it is too valuable. The vegetables used are the green pods of the *lobia* (Dolichos senensis), the fruit of the eggplant or *Bangan* (solonum melongena), and of the *bhindi* (Abelmoschus esculentus), and of many pumpkins (*kaddu*), gourds (*kakri*), watermelons (*tarbuz*) and sweetmelons (*kharbuza*), and the leaves of all the brassicas, of the cockscomb or *chaulai* (Amaranthus polygonus), *methi* (Trigonella fenugœcum), of the small pulses, and the roots of carrots (*gajar*). Wild plants so used have been mentioned in Chapter I. The spices and pickles are too numerous and unimportant to detail. A hearty young man in full work will eat daily from 1 to 1½ sers of grain, one-eighth of a ser of pulse, and two sers or more of butter-milk besides vegetables, &c. The richer Muhamadans occasionally eat goat's flesh; but this is exceptional; but the Hindu does not touch meat, while to the ordinary peasant of either religion, animal food other than milk and *ghi* is quite beyond his means.

The women of the family have all the grinding, cooking, cleaning the house, and spinning to do; among the Brahmans and Rajputs they are strictly confined to the wall of the court-yard, where they cook, spin, clean cotton, grind flour, husk rice, and so

(1) This is perhaps the best word for the bread cake of the country, though it is far inferior to a well-made damper. The 8 o'clock meal is omitted in Kaithal, but a *zamindar* would think badly of his fare if he did not get butter-milk with his noonday and evening meals.

(2) Usually made of the tops of gram leaves or of the young flowering shoot of *sirsam* plucked before the flowers open. It is sometimes mixed with fine ground gram (*besan*) or barley flour.

(3) In Kaithal *khichri* is a porridge of boiled *bajra* and *dal*, and is eaten with butter-milk. Gram is rarely used alone as it is heating.

(4) In Kaithal maize is not used except in the Powadh.

Daily life.

on. Among the Tagas and Gujars they go to the well for water and take the dinner to the field, and often pick cotton and safflower. Among the Jats and Rors they also weed, and do other hard field-work. They all sit much about in the alleys spinning and gossiping, often very much undressed: and though their life is a hard one, it is, to judge from appearances, by no means an unhappy one. The boys, as soon as old enough, are taken from the gutter and sent to tend the cattle; and from that time they are gradually initiated into the labour of their lot. At evening they play noisily about; a sort of rounders, tipcat, hide-and-seek, and prisoners' base, being favourite games. The life is a terribly dull one. The periodical fair or *mela* and the occasional wedding form its chief relief, together with the months of sugar-pressing, when everybody goes about with a yard of cane in his mouth, and a deal of gossiping (as well as a deal of hard work) is done at the press. But the toil is unremitting; and when we think what a mud hovel in a crowded village innocent of sanitation must be in July and August, we can only wonder at the marvellous patience and contentment of the villagers.

Clothes.

95. The men wear a made turban (*pagri* or *pagh*) or a strip of cloth (*dopatta*) wound round the head; a short under-coat buttoning up the front (*kurta*); or else an overcoat (*angarkha* if long, *mirzai* or *kamri* if short) fastening with a flap at the side; and a loin-cloth (*dhoti* if broad and full, *arband* if scanty, *langar* if still more scanty), or a waist string (*tagri*, or if of silk, *pat*) with a small cloth (*langoti*), between the legs. The *kurta* is new-fashioned and is not graceful. A single wrap (*chadar*) in the hot weather and a double wrap (*dohar*) or a quilt (*rizai*) in cold, and a pair of shoes (*patan*) complete the toilet. Trousers (*suthan*) are only worn on occasions of ceremony; a handkerchief (*agoncha*) is occasionally used. Hindus and Musalmans are distinguished by the *angarkha* of the former opening to the right and of the latter to the left. Musalmans sometimes wear their loin-cloth not passed between their legs (*tehmad*); but they usually adopt the Hindu fashion, though they preserve their own name for the garment. The Jats of the south and west on occasions of state often wear turbans of portentous size, especially the Dehia and Dalal Jats. Ghatwal Jats and Banias generally wear them red; and religious devotees of a yellow ochre colour. The other clothes are either white or made of prints; never whole coloured.

The married women wear a bodice to support the breasts (*angi* or *angia*); married or single they wear a small coat down to the hips (*kurti*) buttoning to the right; a petticoat (*ghagri*, *lenga*) or drawers (*paijama*), and a wrap (*orhna*). *Teli* and *kumhar* women wear the coat and petticoat in one piece like a gown (*tilak*). The coat is often not worn; but a Rajput woman always wears it, though she sometimes omits the bodice. Musalman women generally wear drawers (*suthan*), and Hindu women petticoats. So again Musalman women wear blue (indigo) coats and wraps without admixture of red or yellow; while a Hindu

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Social Life.

Clothes.

woman wears red clothes as a rule, and will not wear a blue coat or wrap at all; while her petticoat, if blue, must be spotted or embroidered with red or yellow. But all Rajput women, unless very old, wear drawers, red or blue according to religion: on the other hand, Musalman Gujar women wear petticoats after consummation of marriage and till they grow old, and Hindu Gujar women wear the petticoat, spotted white or red, never wholly red. The whole red petticoat is called *daman;* and the Gujar blue petticoat, with or without spots, *tukri*: a petticoat or wrap spotted with red spots is called *thekma,* from *thekna* to spot. Only prostitutes wear wholly white clothing. Children go naked till 4 or 5 years old; sometimes boys wear a *langoti,* and girls a triangular piece of cloth called *tania.* A girl then wears a petticoat or drawers,[1] and a boy a *langoti* and *tagri,* and sometimes a *jhugla* or shirt. A girl cannot wear an *angi* until she is married and lives with her husband. The everyday clothes are always made from the village-made cloth, which, though rougher, is much stronger than English. Prints are largely brought into holiday use. The ordinary dyes are indigo for blue and safflower for red and yellow. A complete suit of female clothes is called *til* or *tial*; of male clothes, *jora.*

A woman's social standing is greatly determined by her ornaments; and the women, when talking to an English lady, will often condole with her on her husband's stinginess in not supplying her better. Till marriage a girl may wear a silver nose-ring and silver wristlets. These are replaced on marriage by a small gold nose-ring and glass bracelets. When she goes to live with her husband she replaces the former by a larger ornament also of gold. The glass bracelets and the nose-ring form her "sohag," and "sohagan" therefore means a woman whose husband is alive. A widow breaks her bracelets, and throws the pieces and her nose-ring on her husband's corpse, and they are wrapped up with it in the shroud. Armlets and bracelets and anklets, being solid and not easy to get off, are always worn; other ornaments only on state occasions, such as fairs and the like. The ordinary investment for spare capital is to buy jewels for one's wife, as the money can always be realized on occasion. The custom of tattooing (*khinna, godna*) is common, except among the Rajputs and Brahmans. Only women do it; and they tattoo the chin, the inside of the forearm, the outside of the upper arm, the sides of the waist, the calf of the leg. The Gujars do not tattoo the arm. Men and prostitutes have small holes drilled in their front teeth, and gold let in (*chaunp*).[2]

Ceremonies connected with birth, betrothal, marriage, and death.

96. The ceremonies connected with births, betrothals, marriages, and deaths need not be detailed. A full description of them will be found in paras. 316-335 of Mr. Ibbetson's Settlement Report.

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(1) In Kaithal little girls often wear loose drawers (*charni* or *tanbi*): at about eight years of age they are promoted to *paijamas* (*suthan* or *silewar*); as soon as she is married a girl is put into petticoats, unless the marriage has taken place at a very early age.

(2) For a list of the numerous ornaments worn by men and women see Mr. Ibbetson's Settlement Report, paras. 313-314.

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Social Life.

Ceremonies connected with birth, betrothal, marriage, and death.

Jats marry at about 5 or 7 years old, Rors and Gujars at 12 or 14, Rajputs at 15, 16, and even a good deal later. As a matter of fact there is no fixed age for marriage. A Hindu may not marry his foster-mother's daughter, but he can marry any other relation of his foster-mother who is not within the prohibited degrees*. A sister of the first wife may be married or any relation in the same degree but not one above or below. A Hindu may go through the phera with any number of virgins, but a second wife is seldom taken unless the first is childless.

After the wedding the marriage procession (*barat*) proceeds to the house of the boy's father, where the girl wife remains for a day or two.

The consummation takes place after the return of the girl to her husband's house, called *challa* or *muklawa*. This takes place when the girl is pubert; but must be in either the 3rd, 5th, 7th, 9th, or 11th year after the wedding. Among Rajputs, who usually marry late, there is no *muklawa*, and the woman goes to live with her husband immediately after marriage.

Among Musalmans there is no *phera*, the *nikah* or Musalman marriage ceremony being substituted for it, which the *kazi* reads in presence of witnesses. Envoys (*vakils*) go into the girl's house to take her consent, and come out and announce it, the boy consents himself three times, and the ceremony is complete. But among converts to Islam, at any rate, the other customs and ceremonies are almost exactly the same.

When once the ceremonial goings and comings are over the wife may never return to her father's house except with his special leave; and if he sends for her, he has to give her a fresh dower. The village into which his daughter is married is utterly tabooed for the father, and her elder brother, and all near elder relations. They may not go to it, or even drink water from a well in that village; for it is shameful to take anything from one's daughter or her belongings. On the other hand, the father is continually giving things to his daughter and her husband as long as he lives. Even the more distant elder relations will not eat or drink from the house into which the girl is married, though they do not taboo the whole village. The boy's father can go to the girl's village by leave of her father, but not without.

Re-marriage of widows.

97. A man may marry as often as he pleases. If he marries again on the death of his wife, he is called *daheju*. The ceremonies are exactly the same for a man's different marriages. But under no circumstances can a woman perform the *phera* twice in her life. Thus, among the Rajputs, Brahmans, and Tagas, who do not allow *karewa*, a widow cannot under any circumstances re-marry. But among other castes a remarriage

* For these see para. 139.

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Social Life.

Re-marriage of widows.

is allowed under the above name. It is, in its essence, the Jewish Levirate; that is to say, on the death of a man his younger brother has first claim to the widow, then his elder brother, and after them other relations in the same degree; though *karewa* cannot be performed while the girl is a minor, and her consent is necessary. But it has been extended so that a man may marry a widow whom he could not have married as a virgin, the only restriction being that she is not of his own *got*. Thus a Gujar may marry a Jat or Ror widow. Neither marriage nor adoption, nor any other ceremony, can change the clan of a man or woman; that being, under all circumstances, the clan of the original father. Even women of menial castes can be so married; but the woman is then called *heri hui*, though it is still a real marriage. The marriage must not take place within a year of the husband's death. It is effected by the man throwing a red wrap over the woman's head and putting wristlets (*chura*) on her arm in presence of male and female members of the brotherhood.[1]

Language.

98. Table No. VIII[2] shows the numbers who speak each of the principal languages current in the district separately for each *tahsil* and for the whole district. More detailed information will be found in Table No. IX of the Census Report for 1881, while in Chapter V of the same report the several languages are briefly discussed. The figures in the margin give the distribution of every 10,000 of the population by language, omitting small figures.

Language.	Proportion per 10,000 of population.
Hindustani	9,568
Bagri	3
Panjabi	426
All Indian languages	9,999
Non-Indian languages	1

The language of the district is Hindi, with a small admixture of Panjabi words, especially in the northern portion. The dialect varies slightly from north to south; and especially the Jats of the southern border use many words not used in the rest of the district, with a pronunciation and accent quite peculiar to them. Panjabi is spoken in the villages scattered through the Patiala territory. The small Purbia-speaking population is mostly found in the town of Karnal and owes its origin to followers of troops coming from the east, which were stationed in Karnal when it was a cantonment 40 years ago. The Marwaris are mostly the Bohra traders, who have invaded this district of late years. The Bengalis are Government ser-

(1) The Jats and Rors of Indri informed me, when attesting their *riwaj-'am*, that even these ceremonies were dispensed with when the woman was not a widow of a member of her new husband's family, in other cases the widow was merely taken to the house, or in other words co-habitation with a widow constituted a *karewa* marriage. Children of *karewa* marriages inherit equally with those by *phera* marriages.—J.M.D.

(2) This applies to the district as it was constituted in 1881. Hindi was not recognized as a distinct language at the Census of 1881.

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Social Life.

Education.

vants or their families, and the Bagri-speakers are poor people who have been driven from time to time in this direction by famine, and their descendants.

99. Table No. XIII* gives statistics of education as ascertained at the Census of 1881 for each religion and for the total population of each *tahsil*. The figures for female education are probably very imperfect indeed. The figures in the margin show the number educated among every 10,000 of each sex according to the Census returns. Statistics regarding the attendance at Government and aided schools will be found in Table No. XXXVII.

	Education.	Rural population.	Total population.
MALES.	Under instruction ..	48	81
	Can read and write ..	322	394
FEMALES.	Under instruction ..	0·3	2·2
	Can read and write ..	1·5	2·1

The distribution of the scholars at these schools by religion and the occupations of their fathers, as it stood in 1881-82, is shown in the margin.

Details,	Boys.	Girls.
Europeans and Eurasians ..	..	..
Native Christians ..	..	..
Hindus ..	923	..
Musalmans ..	666	..
Sikhs ..	16	..
Others ..	..	..
Children of agriculturists ..	1,042	..
" of non-agriculturists ..	563	..

The villagers are, as a mass, utterly uneducated. A considerable number of the headmen can read and write Mahajani, or Hindi as they call it, to some extent; but many of them do not know even that, and probably not a score of them can write the Persian character. Outside the ranks of the headmen the people are almost wholly illiterate. It is very difficult for a villager to send his boy to school unless there is one in or quite close to his village; and even when this is the case they object to sending their sons to school, because, they say, it renders them discontented with, and unfits them for their position. The Persian, especially, they object to.

Poverty or wealth of the people.

100. It is impossible to form any satisfactory estimate of the wealth of the commercial and industrial classes. The figures in the margin show the working of the income-tax from 1869-70 to 1871-72, and Table No. XXXIV gives statistics for the licence tax for each of the year during which it was in force. The distribution of

Assessment.		1869-70.	1870-71.	1871-72.
Class I	Number taxed ..	596	554	201
	Amount of tax ..	5,834	10,803	1,729
Class II	Number taxed ..	74	195	75
	Amount of tax ..	1,440	5,265	946
Class III	Number taxed ..	26	60	29
	Amount of tax ..	1,244	2,345	947
Class IV	Number taxed ..	5	10	5
	Amount of tax ..	2,991	538	1,716
Class V	Number taxed ..	..	30	..
	Amount of tax ..	..	2,858	..
Total ..	Number taxed ..	601	849	310
	Amount of tax ..	10,909	21,801	5,338

*This applies to the district as it was constituted in 1881.

Chapter III, B.

Social Life.

Proverty or wealth of the people.

licenses granted and fees collected from 1880-81 to 1885-86 between towns of over and villages of under 5,000 souls, is shown below :—

Detail.	1880-81.		1881-82.		1882-83.		1883-84.		1884-85.		1885-86.	
	No. of licences.	Amount of fees.	No of licences.	Amount of fees.	No. of licences.	Amount of fees.	No. of licences.	Amount of fees.	No. of licences.	Amount of fees.	No. of licences.	Amount of fees.
Towns ..	188	2,570	194	3,095	187	2,995	193	3,070	194	3,065	192	2,990
Villages ..	586	8,020	691	8,665	624	7,630	631	7,630	632	7,570	621	7,460
Total ..	774	10,590	885	11,760	811	10,625	824	10,700	826	10,635	813	10,450

The receipts from income tax exclusive of deductions from the salaries of Government officials have been :—

Year.			Collection.
			Rs.
1886-87	...	...	18,606
1887-88	...	...	22,754
1888-89	...	...	28,702
1889-90	...	...	40,079

But the numbers affected by these taxes are small. It may be said generally that a very large proportion of the artisans in the towns are extremely poor, while their fellows in the villages are scarcely less dependent upon the nature of the harvest than are the agriculturists themselves, their fees often taking the form of a fixed share of the produce while even where this is not the case, the demand for their products necessarily varies with the prosperity of their customers. Perhaps the leather-workers should be excepted, as they derive considerable gains from the hides of the cattle which die in a year of drought. The circumstances of the agricultural classes are discussed below in section E. of this chapter.

Character and disposition of the people.

101. The character and disposition of the people is thus described by Mr. Ibbetson :—

"I have a great liking for the ordinary villager. His life is one of monotonous toil under very depressing circumstances. He grumbles much, but only as a farmer is bound to do ; and he is marvellously patient, cheery, and contented on the whole. He is often exceedingly intelligent considering his opportunities, he is hospitable in the extreme, and he loves a joke when the point is broad enough for him to see. His wants are easily satisfied ; he has formulated them thus :—

"*Das change bail dekh, wa das man berri ;*
"*Hakk hisabi nya, wa sak sir jeori ;*
"*Bhuri bhains ka dudh, wa rabar gholna ;*
"*Itna de kartar ; to bohr na bolna.*"

Chapter III, B.

Social Life.

Character and disposition of the people.

"Let me see ten good oxen and ten maunds of mixed grain, the milk of a grey buffalo and some sugar to stir into it, a fair assessment demanded after the harvest. God give me so much, and I won't say another word.

"I will even say that according to his standard he is moral, though his standard is not ours. The villager looks at the end, and not at the means. If he honestly thinks that his friend is in the right in his claim, a respectable man will tell any number of circumstantial lies to produce the same impression on the mind of the Judge. But if he thinks him in the wrong, he will not bear evidence either for or against him; he will say that he knows nothing about the matter. And when formally confronted by the whole brotherhood, a villager will rarely persist in a claim which he knows to be false. Of the good faith that governs the mass of the people in their dealings with one another, it would, I believe, be difficult to speak too highly, specially between members of the same community. Of their sexual morality, I can say nothing. If scandals are common, we hear but little of them, for they are carefully hushed up. My impression is that the village life is infinitely more pure in this respect than that of an English agricutural village; partly, no doubt, because of the early marriages which are customary.[1]

"The loyalty of the people in the tract is, I think, beyond suspicion. They remember the horrors of the days of anarchy which preceded our rule too vividly to be anything else. Two points in our administration, however, are especially complained of by them. They complain bitterly of Native Judges;[2] and say that, since their authority has been extended, *andher hone laga*, it has begun to grow dark. And they object to our disregard of persons, and to our practical denial of all authority to the village elders. They say that a headman nowadays cannot box the ears of an impertinent village menial without running the risk of being fined by the Magistrate: and I think it can hardly be denied that, in many respects, our refusal to recognise the village as a responsible unit is a mistake; while, where we do partly enforce the system of joint responsibility, we wholly deny to the people the privilege of joint government."

Tables Nos. XL, XLI, and XLII give statistics of crime; while Table No. XXXV shows the consumption of liquors and narcotic stimulants.

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(1) Immoral relations between unmarried persons of the same tribe and *got* probably rarely occur, because they involve incest, marriage between such persons being unlawful. The late Deputy Commissioner, Mr. Drummond, has pointed out to me the marked effect which this has in upholding the village morality.—J. M. D.

(2) *Hindustani hakim* is certainly a "name of scorn" in Karnal. In the early days of our rule the people probably suffered from the importation of N. W. P. officials. At the same time I have heard them talk in the highest terms of two native officials, who have served recently among them. In Sikh times the *hakim* was often a village tyrant, and our own revenue administration after annexation was harsh, and I doubt whether Karnal people instinctively trust the *hakim* of any nationality. Witness the local proverb *Hakim ke agari ko aur ghore ke pichhari ko likarna nahin chhahiye*, which means 'Avoid the face of a *hakim* and the heels of a horse.'—J. M. D.

Chapter III, C.

Religious Life.

General statistics and distribution of religions.

SECTION C.—RELIGIOUS LIFE.

102. Table No. VII[1] shows the numbers in each *tahsil* and in the whole district who follow each religion, as ascertained in the Census of 1881, and Table No. XLIII[1] gives similar figures for towns. Tables Nos. III, IIIA, IIIB of the Report of that Census give further details on the subject. The distribution of every 10,000 of the population by religions is shown in the margin. The limitations subject to which these figures must be taken, and especially the rule followed in the classification of Hindus, are fully discussed in Part I, Chapter IV of the Census Report. The distribution of every 1,000 of the Musalman population by sect is shown in the margin. The sects of the Christian population are given in Table No. IIIA of the Census Report; but the figures are, for reasons explained in Part VII, Chapter IV of the Report, so very imperfect that it is not worth while to reproduce them here.

Religions.	Rural population.	Urban population.	Total population.
Hindus ...	7,602	5,096	7,286
Sikh ...	142	38	130
Jains ...	65	102	75
Musalman ...	2,190	4,718	2,508
Christian ...	1	6	1

Sect.	Rural population.	Total population.
Sunnis	984	983
Shiahs	12·1	13·6
Others and unspecified ...	3·9	3·4

Table No. IX[1] shows the religion of the major castes and tribes of the district, and therefore the distribution by caste of the great majority of the followers of each religion. A brief description of the great religions of the Panjab and of their principal sects will be found in Chapter IV of the Census Report. The religious practices and beliefs of the district present no special peculiarities; and it would be out of place to enter here into any disquisition on the general question. The general distribution of religions by *tahsils* can be gathered from the figures of Table No. VII; and regarding the population as a whole no more detailed information as to locality is available. Practically the religions of the district reduce themselves to two. There are few Sikhs or Christians, and no Buddhists; only an occasional Jain is to be seen; the Saraogis, who have two fine temples in Panipat, are almost confined to the towns, and wholly to the *Bania* caste; and the village communities are, almost without exception, either Musalman or Hindu. Among Hindus are included the sweeper caste, who would

(1) This applies to the district as it was constituted in 1881.

not be recognised by Hindus proper as belonging to their religion.

Musalmans.

103. The Musalmans of the district[1] must be divided into two very distinct classes. The original Musalmans, such as Saiyids, Pathans, Kureshis, Shekhs, and Mughals, are strict followers of Islam. In the villages a few laxities have crept in; but in the main their religion and its customs are those of all Musalmans, and we need say no more about them. But the case is very different with the Musalman Rajputs, Gujars, and similar converts from Hinduism. Their conversion dates, for the most part, from the close of the Pathan, and the early days of the Mughal dynasty. Many of them are said to have been converted by Aurangzeb, who is known in the district as Naurang *badshah*; and these were probably the last made, for the change of faith always dates from at least eight generations, or 200 years back, and proselytism was, of course, unknown under the Sikhs and Mahrattas. In some cases the whole community of a village is Musalman; but quite as often one branch has abandoned, and the other retained their original faith, and in no case has any considerable group of villages embraced Islam as a whole.

Living thus side by side with their Hindu brethren in the same or the next village, sharing property in the same land, and forming a part of the same family with them, it is impossible that the Musalman converts should not have largely retained their old religious customs and ideas. In fact, till some 25 years ago, they were Musalmans in little but name. They practised circumcision, repeated the *kalima*, and worshipped the village deities. But after the mutiny a great revival took place. Muhammadan priests travelled about preaching and teaching the true faith. Now almost every village in which Musalmans own any considerable portion has its mosque, often of adobe only, and all the grosser and open idolatries have been discontinued. But the local deities and saints still have their shrines, even in villages held only by Musalmans; and are still worshipped by the majority, though the practice is gradually declining. The women, especially, are offenders in this way. A Musalman woman who had not offered to the small-pox goddess would feel that she had deliberately risked her child's life. Family priests are still kept up as of old; and Brahmans are still fed on the usual occasions. As for superstitions, as distinct from actual worship, they are untouched by the change of faith, and are common to Hindu and Musalman.

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(1) The rest of Chapter III, C, is taken from Mr. Ibbetson's Settlement Report. I have made a few additions, chiefly in the form of notes.—J. M.D.

Chapter III, C.

Religious Life.

Hindus.

104. The student who, intimately acquainted with the Hindu Pantheon as displayed in the sacred texts, should study the religion of the Hindus of the district, would find himself in strangely unfamiliar company. It is true that all men know of Shiva and of Vishnu;[1] that the peasant, when he has nothing else to do to that degree that he yawns perforce, takes the name of Narayan; and that Bhagwan is made responsible for many things not always to his credit. But these are the lords of creation, and too high company for the villager. He recognises their supremacy; but his daily concerns in his work-a-day-world are with the host of deities whose special business it is to regulate matters by which he is most nearly affected.[2]

Minor deities.

105. These minor deities, whose cult comprises the greater part of the peasant's religious ideas and acts, may be broadly divided into four classes. First come the benevolent deities, such as the Sun, the Jamna, Bhumia, Khwaja Khizr, and the like. Then the malevolent deities, mostly females such as the Small-pox Sisters, Snakes, the Fairies, &c. Then the sainted dead, such as Guga, Lakhdata, and Bawa Farid; and finally, the malevolent dead, such as Saiyids (Shahids). It is a curious fact that most of the malevolent deities are worshipped chiefly by women, and by children while at their mother's apron. Moreover, the offerings made to them are taken not by Brahmans, but by impure and probable aboriginal castes[3] and are of an impure nature, such as *churmas*, fowls, and the like. And they are seldom or never worshipped on Sunday, which is the proper day for benevolent Hindu deities. The primæval Aryan invaders must have inter-married, probably largely, with the aboriginal women; and it is a question to which enquiry might profitably be directed, whether these deities are not in many cases aboriginal deities. Even setting aside the theory of inter-marriage, it would be natural that the new comers, while not caring to invoke the aid of the beneficent *genii loci*, might think it well worth while to propitiate the local powers of evil upon whose territory they had trespassed. In this very spirit the Hindus have adopted the worship of the Muhammadan saints, and especially of the more malevolent ones. It can do no harm to worship them, while they may be troublesome if not propitiated; and all these saints are commonly worshipped by Hindus and Muhammadans alike.

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(1) Brahma is never mentioned save by a Brahman; and many of the villagers hardly know his name.

(2) In a vague sort of way the peasant is a monotheist. The name of Parameçra, "the supreme lord," is often on his lips, and he believes that rain and hail, wind and storm, fulfil his word. He always refers the success or failure of his crops to the will of Parameçra. The godlings manage the minor departments of the world's affairs.—J. M. D.

(3) In some cases the Brahmans will consent to be fed in the name of a deity, when they will not take offerings made at his shrines. And they will in some villages allow their girls to take the offerings, for if they die in consequence it does not matter much. Boys are more valuable, and must not run the risk.

Effect of Islam upon Hinduism.

106. There can be no doubt that the presence of Islam by the side of Hinduism has had considerable effect upon the latter.[1] The Hindu villager, when asked about his gods, will generally wind up by saying "after all there is but one great one," and they generally give the information asked for with a half smile, and will often shake their finger and say it is a *kachcha* religion. Of course the existence of such a feeling is exceedingly compatible with the most scrupulous care not to neglect any of the usual observances; and, whatever might be his private convictions or absence of conviction, a man would feel that it would be pre-eminently unsafe to omit the customary precautions, and be thought ill of if he did so.

The sect of *Sadhs.*

107. A peculiar sect, known as Sadhs, and mostly of the Jat tribe, own the village of Zainpur Sadhan and half of Garhi Sadhan in the Indri *pargana*. They are followers of the Guru Udho Das, who was doubtless a reformer of the type of Kabir or Nanak. They worship no material object, paying no respect to the Jamna or Ganges. They have no temple or idol, and worship only the one God under the title of "Sat," or the "true one." They have a *gurudwara* in which the whole community meets on each day of the full moon (*purnmasi*), when the precepts of the sect are recited. Music is not allowed in their worship. They neither fee nor feed Brahmans, nor allow them to take any part in their weddings or funerals. At marriages the phera is presided over by a "*panch*" of respectable Sadhs. Following the orders of their *guru*, they *salam* to no one but the Supreme Being, and this peculiarity sometimes gets them into trouble with native officials.

Shrines.

108. Temples proper are built only to Vishnu and Shiv, and hardly ever by the villagers, who content themselves with making small shrines to the local deities.[2] In Kaithal there are monasteries at Pehowa, Dhundarheri, Ramthali, and Guhna.

Modes of worship.

109. The most ordinary form of worship is a salutation made by joining the hands palm to palm, and raising them to the forehead (*dhok marna*). A villager does this whenever he passes the shrine of a village deity. In one village the mason who built the new common room, threw in, as a thanks-offering for the completion of the work, a wooden Englishman who still sits on the top of the house;

(1) I have known a Hindu *lambardar*, a Ror by tribe, when my horse stumbled, exclaim "Allah"! with great devoutness, and when asked why, he explained that Allah and Rabb were one, apparently taking Rabb as an orthodox Hindu name for the Deity. A Musalman Rajput *chaudhri*, when told he should be shocked to look at a slab with graven images dug out of the bed of the old Ghagar, replied :—" Why, our fathers made them." Religious bigotry is still confined to the towns.—J. M. D.

(2) These shrinelets are usually called *thán*; the larger building erected in honour of Guga Pir is always called a *mari*, while Sultan Pir's shrine is a *makan*.—J. M. D.

Chapter III, C.

Religious Life.

Modes of worship.

and, though the rain has affected his complexion much for the worse, the people always salute him on coming out of their houses in the morning. There is also *chichkarna*, which consists in touching first the object to be worshipped, and then the forehead, with the right hand. Another form of worship is to scoop out a little hollow in the earth by the shrine and fling the soil on to a heap. This is called *matti kadna*, and seems very much analogous with the common custom of flinging stones on to a cairn. It is practised chiefly in honour of ancestors and fairies, and heaps of mud raised in this way by a shrine sometimes reach a height of 8 feet. The person doing this will often say to the god "I will dig you a tank;" and perhaps the custom has its origin in the honour attachable to the maker of a tank in this thirsty land; but it is equally possible that this is only a local explanation of a custom brought from a more stony country, and the origin of which has been forgotten, for hundreds of our villagers have never seen a stone in their lives.

Offerings.

110. Offerings (*charhawa*) generally take the form of a little gram, or milk, or cooked food, or a few sweetmeats offered in front of the shrine in small saucers or jars, the remainder of the offering being given to the appropriate receiver. Libations are not uncommon; and a white cock is sometimes killed. And in many cases Brahmans are simply fed in the name of the god. Offerings of cooked food may be divided into two classes. To the benevolent gods or to ancestors, only *pakki roti*, that is cakes or sweets fried in *ghi* may be offered; while to the malevolent and impure gods, *kachchi roti*, generally consisting of *churma*, or stale bread broken up and rolled into balls with *gur* and *ghi*, is offered. Brahmans will not take the latter class of offerings. Vows (*kabul*) are common, the maker promising to build a shrine or feed so many Brahmans in the event of his having a son, or recovering from illness, or the like.

Possession, divination, and exorcism.

111. When a villager is ill, the disease is generally attributed to the influence (*opri, jhapet*) of a malevolent deity, or of a ghost (*bhut*) who has possessed him (*lipat* or *chipat* or *pilach jana*). Recourse is then had to divination to decide who is to be appeased, and in what manner. There is a class of men called *bhagats* or *syana* (literally, knowing ones) who exercise the gift of divination under the inspiration of some deity or other, generally a snake-god or Saiyid. The power is apparently confined to the menial (aboriginal ?) castes, is often hereditary, and is rarely possessed by women; it is shown by the man wagging his head and dancing; and he generally builds a shrine to his familiar spirit, before which he dances. When he is to be consulted, which should be at night, the inquirer provides tobacco and music. The former is waved over the body of the invalid, and given to the *bhagat* to smoke, and the music plays, and a *ghi* lamp is lighted,

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and the *bhagat* sometimes lashes himself with a whip; under which influences the soothsayer is seized by the afflatus, and in a paroxysm of dancing and head wagging, states the name of the malignant influence, the manner in which he is to be propitiated and the time when the disease may be expected to abate. Another mode of divination is practised thus. The *syana* will wave wheat or *jowar* over the patient's body, by preference on Saturday or Sunday; he then counts out the grains one by one into heaps, one heap for each god who is likely to be at the bottom of the mischief, and the deity on whose heap the last grain comes is the one to be appeased. The waving of the grain or tobacco over the patient's body is called *chhunna*; the counting the grains *kewali*.[1]

The malignant deity is appeased by building him a new shrine or by offerings at the old one. Very often the grain to be offered is put by the head of the sufferer during the night and offered next day; this is called *orra*. Or the patient will eat some and bury the rest at the sacred spot, or the offerings will be waved over the patient's head (*warna*) before being offered; or on some moon-light night while the moon is still on the wax, he will place his offering with a lighted lamp on it at a place where four roads meet; this is called *langri* or *nagdi*. Sometimes it is enough to tie a flag on the sacred tree or to roll on the ground in front of the shrine, or to rub one's neck with the dust of it. Boils can often be cured by stroking them with a piece of iron and repeating the name of the deity concerned. Witchcraft proper (*jadu*) is principally practised by the lowest castes, and you hear very little of it among the villagers.

Vishnu, Ram, and Narayan.

112. The Hindus of the district are Vaishnavas, though Vishnu is hardly recognised by them under that name. But under the name of Ram and Narayan he is the great god of

(1) Cattle disease is combated by performing *tuna*. A Sadhu is called in. While the ceremony lasts no grain must be ground or cooking causing noise carried on in the village, in case the *devata* should be driven away. The Sadhu marks out a space on the ground, lights a fire, and goes through certain ceremonies. A rope is stretched across the entrance of the village below which the cattle must pass. The ashes of the Sadhu's fire are tied up in pieces of rag, and these with an earthenware lid marked with Cabalistic signs and an earthenware vessel also containing ashes are attached to the rope. The Sadhu makes 2 switches, one of *dab* grass and the other of twigs of the *nim* tree, and with these he sprinkles the animals as they pass under the rope in the morning. A ploughshare with a bag of ashes fastened to it is also fixed in the ground outside the village gate. The *tuna* lasts for a few days, during which lamps are lit daily by the Brahmans at the village Khera (para. 117). Cattle which die during the *tuna* are not given to the Chamar, but buried where they die. I found one buried in a lane inside the village. Apparently the Sadhu is paid by results, getting nothing if the disease does not abate. In Kaithal a *lota* containing a *chitthi* or *lekha* from the Nawab of Malerkotla is hung over the village gate. The Nawab gives these letters free of charge. This is a popular remedy both with Musalmans and Hindus, and no doubt is quite as effective as the more elaborate *tuna*."—J. M. D.

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the country. Temples to him (*thakurdwara*) exist in several of the larger villages, generally built by Brahmans or *Bairagis*, and almost always insignificant. He is worshipped under the name of Ram by Rajputs only; under the name of Narayan by other castes. On the 11th of Katik or *devuthni gyaras*, when the gods wake up from their four month's sleep, Brahmans are fed in his name; and on the 8th of Bhadon (*Janmashtami*), such villagers as have fasted, which no man working in the fields will have done, will generally go to the *thakurdwara* and make an offering. And on some Sunday in Bhadon they will feed a few Brahmans in his name, Brahmans and *Bairagis* take the offerings.

Shiv Mahadev.

113. *Shivalas* are not at all uncommon in the villages, built almost without exception by *Banias*. The priests are *Gosains* or *Jogis*, generally of the *kanphata* or ear-pierced class, and they take the offerings. No Brahman can partake of the offerings to Shiv, or be priest in his temple, though they will worship him and sometimes assist in the ceremonies, thus deviating from the strict rule of the original cult. On the *Sheoratri*, on the 13th of Sawan and Phagan, such people as have fasted will go to the *Shivala*; but it is seldom entered on any other days.

Suraj Devata,[1] or the Sun-god.

114. The Sun is the god whom the people chiefly delight to honour. Any villager if asked whom he worships most will mention him. No shrine is ever built to this god. Sunday is of course the day sacred to him. On Sunday the people do not eat salt; nor do they set milk for *ghi*, but make it into rice-milk, of which a part is given to the Brahman in honour of the Sun; and a lamp is always burnt to him on Sunday. Brahmans are fed every now and then on Sunday in his name, and especially on the first Sunday after the 15th of Sarh, when the harvest has been got in, and the agricultural year is over. Before the daily bath water is always thrown towards the Sun (*argh*);[2] and every good man, when he first steps out of doors in the morning, salutes the Sun, and says *dharm ko sahai rakhiye suraj maharaj*, or "keep me in the faith, oh Lord the Sun." Brahmans take the offerings.

The Jamna.

115. After the Sun comes the River Jamna, always spoken of as *Jamna Ji*; and so honoured that even when they complain of the terrible evils brought by the canal, which is fed from the river, they say they spring *Jamna Ji ki dosti se*, "from Lady Jamna's friendship." There are no shrines to the Jamna; the people go and bathe in the river, or, if unable to go so far, in the canal, on the *mekhs* or *sakrants* in Chait and Katik, on the Dasehra of Jeth, and on the 15th of Katik, or every day in that month if near enough. And Brahmans are constantly fed on Sunday in honour of *Jamna Ji*, and take all offerings.

(1) Sometimes called Suraj Narayan.—J. M. D.
(2) This is done to the new moon too on the evening of her appearance, if one thinks of it.

Dharti Mata or Mother Earth.

116. Every morning, when a man first gets off his bed, he does obeisance to the earth, and says *sukh rakhiyo Dharti Mata*, "preserve me Mother Earth." When a cow or buffalo is first bought, or when she first gives milk after calving, the first five streams (*dhar*) of milk are allowed to fall on the ground in her honour, and at every time of milking the first stream is so treated. So when medicine is taken, a little is sprinkled in her honour. So at the beginning of ploughing and sowing obeisance is made to her and she is invoked.

Bhumia or the god of the homestead.

117. *Bhumia* should, from his name, be the god of the land, and not of the homestead. But he is, in these parts, emphatically the god of the homestead or village itself, and is indeed often called *Khera* (a village) and *Bhumia* indifferently. In one or two villages a god called *Bhairon* * or *Khetrpal* (field-nourisher) is worshipped; but, as a rule, he is unknown. When a new village is founded, the first thing of all is to build a shrine to *Bhumia* on the site selected. Five bricks are brought from the *Bhumia* of the village whence the emigrants have come; three are arranged on edge like the three sides of a house, the other two are put over them like a gable roof, an iron spike is driven in, five lamps are lighted, five *laddus* are offered, Brahmans are fed, and the shrine built over the whole. In many cases, where two villages had combined their homesteads for greater security against the marauders of former days, the one which moved still worships at the *Bhumia* of the old deserted village site. *Bhumia* is worshipped on Sunday. They burn a lamp and offer a cake of bread at the shrine, and feed Brahmans. This is always done twice a year, after the harvests are gathered in, and also on other occasions. *Bhumia* is also worshipped at marriages; and, when a woman has had a son, she lights a lamp and affixes with cowdung five culms of the *panni* grass, called *beran*, to the shrine. So too the first milk of a cow or buffalo is always offered to *Bhumia*. Women commonly take their children to worship *Bhumia* on Sunday. The shrine is very usually built close to the common room or just outside the village site; and the only villages in which there is not one are held wholly by Saiyids. Brahmans take the offerings.

hwaja Khizr, the Water-God.

118. Khwaja Khizr is the local god of water; though the name really belongs to one of the Muhammadan prophets, whose special duty it is to take care of travellers. He is worshipped more in the Khadir than in the Bangar, and especially on Sunday. Twice a year after the harvests he is worshipped at the well, lamps being lighted and Brahmans fed. And on the festivals of Holi and Diwali, a raft called *langri* is made of the *beran* just mentioned, and a lighted

* Bhairon, or the terrible one, in the Brahmanical religion is a form of Mahadev. He is worshipped under various forms, such as Kal Bhairon, Bhut Bhairon. He has become a part of the village religion because, as Bhut Bhairon, he drives away all the numerous Bhuts who live in the earth.—J.M.D.

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lamp put on it and set afloat on the tank in his honour. Brahmans take the offerings to Khwaja Khizr, though they are occasionally given to the water-carrier or Jhinwar.

Pitr or ancestors.

119. Among the Gujars especially, tiny shrines to the ancestors are common all over the fields; and among other castes they will be found in every village. Occasionally the shrine is to the gentile ancestor, and built upon the brick brought from his shrine at the place of origin, as with the Jaglan and Sandhu Jats. Mud is always flung up to these shrines. And all the people feed Brahmans in honour of their ancestors on the 15th of the month (*mawas*), and especially in the *kanagat*, or the 16 days previous to and including the *mawas of Asoj*, which are specially sacred to the *pitr*. Cattle are never worked on *mawas*.

Satis.

120. There are a great number of *satis* or places where widows have been burnt on their husbands' pyres all over the country. They are generally marked by large shrines 3 or 4 feet square. Lamps are lit and Brahmans fed at them on the 11th or 15th of Katik. In one case Tagas, who had emigrated from their old village, used yearly to come more than 40 miles to offer at their old *sati* till quite lately, when they took away a brick from the *sati* and used it as the foundation of a new *sati* at their present village, which answered all purposes. This is always done in the event of emigration. Brahmans take the offerings.

The *gyals* or sonless dead.

121. When a man has died without a son (*ut naput jana*) he becomes a *gyal* or *ut*, and is particularly spiteful, especially seeking the lives of the young sons of others. In almost every village small low platforms (*bhorka, bauka*) with saucer-like depressions in them, are made to the *gyals*; and on the *mawas*, and especially on Diwali or the *mawas* of Katik (but not in the *kanagat*, which is sacred to the *pitr*), the people pour Ganges-water and cow's milk into these saucers, and light lamps and feed Brahmans, and dig mud by them. It is more than probable that *bhorkas* are identical in origin and signification with the "cup marks" which have so puzzled antiquaries. Brahmans take the offerings. Young children often have a rupee hung round their necks by their mothers in the name of the *gyals*.

The *Sitala* or small-pox group.

122. The pustular group of diseases is supposed to be caused by a band of seven sisters, of whom Sitala or Mata, the goddess of small-pox, is the greatest and most virulent. Others of the groups are Masani, Basanti, Maha Mai,* Polamde, Lamkaria, and Agwani or the little one who goes in front of all. But the general form the shrine takes in a village is that of a large one for Sitala, and a number of others for the sisters, of whom the people will know the name of only one or two.

*This is properly a name of Devi who drives people mad; and is worshipped by some, but not very generally, on the 8th of Chait and Asoj.

The *Sitala* or small-pox group.

Basanti is a new addition to the group, the disease having quite lately come from the hills. They are sometimes called Sri Sitala, Mai Masani, Bari Basanti, and so forth. The people profess to distinguish the disease due to each; but it is impossible to find out what they are, except small-pox, which is undoubtedly due to Sitala.

There are seven principal shrines to these deities at Patri, Kabri, Beholi, and Siwa of this district; Bidhlun near Bhatganw, Birdhana near Jhajjar, and at Gurgaon itself. They are never worshipped by men, but only by women and children of both sexes up to the age of 10 or 12. Enormous crowds collect at these shrines on the 7th of Chait which is called *sil* or *sile saten*, or Sitala's 7th. Besides this, *Phag* or *Dolendhi*, the day after the *Holi* festival, is a favorable day, and any Monday, especially in Chait and Sarh. Sitala rides upon a donkey; and gram is given to the donkey and to his master the potter at the shrine, after having been waved over the head of the child. Fowls, pigs, goats, cocoanuts, and *churma* are offered, and eaten by sweepers and Hindu *Jogis*, and white cocks are waved and let loose. An adult who has recovered from small-pox should let a pig loose to Sitala, or he will be again attacked.[1] During an attack no offerings are made; and, if the epidemic has once seized upon a village, all offerings are discontinued till the disease has disappeared, otherwise the evil influence (*chhot*) will spread. But so long as she keeps her hands off, nothing is too good for the goddess, for she is the one great dread of Indian mothers. She is, however, easily frightened or deceived; and if a mother has lost one son by small-pox, she will call the next *Kurria*,[2] he of the dunghill; or *Baharu*, an outcast; or *Mara*, the worthless one; or *Bhagwana*, given by the great god. So, too, many women dress children in old rags begged of their neighbours, and not of their own house, till they have passed the dangerous age.

The *Saiyids* (*Shahids*) or martyrs.

123. The country is covered with small shrines to Musalman martyrs; properly *Shahids*, but called *Saiyids* by the villagers. There was a Raja Tharu in the Nardak, after whom several villages are still called Tharwa, and who dwelt in Habri. He used to levy seignorial rights from virgin brides. One night the daughter of a Brahman suffered thus. Her father appealed for help to Miran Sahib, a Saiyid, who collected an immense army of Saiyids, Mughals, and Pathans, and who vanquished the Raja. The fight extended over the whole country to Dehli; and the Saiyid shrines are the graves of the Musalmans who

(1) I have seen a pig actually sacrificed at the shrine.—J.M.D.

(2) Other opprobrious names are *Chhitar* (an old shoe), *Chuhra* (scavenger) *Chhaju* (as worthless as a *chhaj* or winnowing basket), *Ghasitu* (trailed along the ground), *Nathu* (having a *nath* or nose-ring). The last name requires some explanation. If a woman have lost several male children, the nose of the next born is pierced and a nose-ring inserted, in order that the godlings may mistake him for a girl and so pass him over. Mr. Ibbetson compares Two penny, Huitdeniers, &c.—J.M.D.

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The *Saiyids (Shahids)* or martyrs.

fell. But a favourite prescription in sickness is to build a shrine to a Saiyid, whose name is often not even given, and, when given, is almost always purely imaginary, so that the Saiyid shrines are always being added to, and most of them are not connected with any actual person. Lamps are commonly lit at the shrines on Thursdays; but offerings are seldom made except in illness or in fulfilment of a vow; they often take the form of a fowl or a goat or especially a goat's head (*siri*), and they are taken by Musalman *fakirs*. Saiyids are very fond of blue flags. One of the Imperial *kos minars* or milestones has been transformed into a Saiyid's shrine by the people of Karnal city, and every Thursday evening there are worshippers, and *fakirs* to profit by them. The Saiyids are very malevolent, and often cause illness and death. One Saiyid Bhura, who has his shrine at Bari[1] in Kaithal, shares with Mansa Devi of Mani Majra the honour of being the great patron of the thieves in this part of the Panjab; and a share of the booty is commonly given to the shrine. Boils, especially, are due to them: and they make cattle miscarry.

The *Singhs* or snake gods.

124. There is a group of *Nagans*, or female Snake-deities, known as *Singhs* by the people, and especially called *Devata* or godling. They are almost always distinguished by some colour; and the most commonly worshipped are *Kali*, *Hari*, and *Bhuri Singh*, or black, green, and brown. But here again the *Bhagat* will often direct a shrine to be built to some *Singh* whom no one has even heard of before; and so they multiply in a most confusing way. They are servants of Raja Basak Nag, King of Patal or Tartarus. Dead men also have a way of becoming snakes—a fact which is revealed in a dream, when a shrine must be built. Their worship extends all over the district, and is practised by all castes; but most of all by Gujars, and in the Khadir. If a man sees a snake he will salute it; and, if it bite him, he or his heirs, as the case may be, will build a shrine on the spot to prevent a repetition of the occurrence. But independently of this, most villages have shrines to them. Sunday is their day; and also the 9th of Bhadon in particular, when most people worship them. Brahmans do not mind being fed at their shrines, but will not take the offerings, which go to Hindu *Jogis*. Both men and women worship them, especially at weddings and births, and offer *churma* and flags (*dhaja*). They cause fever; but are not on the whole very malevolent, and often take away pains. They have great power over milch cattle; the milk of the 11th day after calving is offered to them; and libations of milk are very acceptable to them. They are certainly connected in the minds of the people with the *pitrs* or ancestors, though it is difficult to say exactly in what the connection lies. Wherever the worship of the *pitrs* is most prevalent, there the snake-gods also are especially cultivated. The snake is the common ornament on almost all the minor Hindu shrines.

(1) Bahiri (?).—J.M.D.

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Guga Pir.

125. *Guga*, or *Jahir Pir*, or *Bagarwala*,[1] though a Musalman, is supposed to be the greatest of the snake-kings. He is buried near Hissar, but is worshipped throughout the district. The 9th and 15th of Bhadon, especially the former, are his days; and generally the 9th of any month; and also Mondays. His shrine is usually a cubical building with a minaret on each corner, and a grave inside. It is marked by a long bamboo with peacock plumes, a cocoanut, some coloured thread, and some hand-*pankhas (bijna)* and a blue flag on the top. This is called his *chhari* or fly flap; and on the 9th of Bhadon the *Jogis* take it round the village to the sound of drums, and people salute it and offer *churmas*. He is not malevolent; and the loss of respect which his good nature causes him is epitomised in the saying—*Guga beta na dega, tau kuchh na chhin lega*:—"If *Guga* doesn't give me a son, at least he will take nothing away from me." He is associated by the people with the five *Pirs*, who occasionally have shrines in the villages.

The *Nuris* or fairies.

126. The *Nuris* are a somewhat vaguely defined class of malevolent spirits, who attack women only, especially on moonlight nights, giving them a choking sensation in throat and knocking them down (? hysteria). Children, on the other hand, they protect. They seldom have shrines built to them; but a tree or a corner by a tank is generally sacred to them, and here mud is flung to them. They are Musalman, and are apparently the same as the *Parind* or *Pari*, being also known as *Shahparis*; but they resent being called so, and no women would mention the word. *Churmas* are offered to them on Thursday evening by women and children, and taken by Musalman *fakirs*, or sometimes *Jogis* or sweepers; and they are worshipped at weddings. The middle of Chait, too, is a common time for offerings to them.

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(1) Guga was by race a Chauhan Rajput and a lineal descendant of the great Raja Manak Rai. He was born at Garhdera near Sirsa. His father was Raja Jewar and his mother's name was Bachal. She was barren, and in hope of obtaining a son attended for 12 years on the saint Gorakhnath, the founder of the community of *Kanphata Jogis*. Her sister Kachal stole her clothes, and being mistaken for Bachal got two flowers from the saint, and bore two sons Urjan and Surjan. When *Bachal* went to Gorakhnath and told him how her sister had robbed her of her right, he gave her a seed, promising her a son who would be venerated in all the four quarters, and kill Urjan and Surjan. The two little shrines usually built to right and left of Guga's *maris* are sometimes explained as being dedicated to Narsingh (Guga's *Diwan*) and Goraknath. Others say they are dedicated to Kali Singh and Bhuri Singh. Guga is sometimes painted seated on a horse, and about to start from the Bagar country in pursuit of Urjan and Surjan. His mother stands in front of the horse, trying to prevent her son's departure. He holds in his hand a long staff (*bhala*), and over his head the heads of 2 snakes meet, the body of one being coiled round the staff. If a man is bitten by a snake people think he has been neglecting Guga. Both Hindu and Musalman *Jogis* take his offerings. His peculiar flat roofed shrine is easily distinguished. His worship extends into the N.-W. Provinces and possibly the limits within which he is worshipped would give us a rough ethnological boundary, showing how far the colonization of the country by tribes pressing up N. and E. from the Bagar Des extended.—J. M. D.

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Minor saints.

127. The local saints are innumerable, many villages having shrines to names never heard of elsewhere; often those of people killed in the village. A few of the most celebrated saints worshipped in the district are mentioned below:—

Miran Sahib was a Saiyid of Baghdad, of whom many wonderful stories are told. He is often said to be the same as *Hazrat Piran Pir* of the Panjab; but this seems very doubtful. He once led a mighty army to battle, and had his head carried off by a cannon-ball during the fight. But he did not mind a bit and went on fighting. Then a woman in one of Raja Tharwa's villages said:—"Who is this fighting without his head?" Upon which the body said—"*Hakk, hakk,*" and fell down dead, but, as he was going to fall, he said—"What! Are'nt these villages upside down yet?" Upon which every village belonging to and called after Raja Tharwa throughout the country was turned upside down, and all their inhabitants buried except the Brahman's daughter. The walls are still standing upside down to convince you. Miran Sahib was buried in Habri, and is commonly invoked and worshipped by the Nardak people; as also his sister's son Saiyid Kabir. They have a joint shrine called *Mamu-bhanja* (uncle and nephew) in Sunpat.

Lakhdata or *Sakhi Sarwar*[1] is a famous Panjab saint chiefly worshipped by Gujars and Rajputs. On *Salono,* the last day of Sawan, the women paint his picture on the wall, and the Brahmans bind a sacred thread on the wrist. He is also called *Lohianwala,* or *Sakhi Sultan,* or *Salanwala.*[2]

Bawa Farid Shakarganj of Pakpatan in Montgomery, is also honoured by the people, and has a shrine at Ghogripur, where crowds of people offer to him after the spring harvest.

Boali Kalandar, a contemporary of *Bawa Farid,* is a very celebrated local saint. He used to ride about on a wall at Buddha Khera, but eventually settled at Panipat. He prayed so constantly that it became laborious to get water to wash his hands with each time; so he stood in the Jamna, which then flowed under the town. After standing there seven years the fishes had gnawed his legs, and he was so stiff that he could

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(1) He is worshipped on Thursday. On that day no milk should be churned, but drunk fresh, given in charity, or offered at Sarwar's shrine. Offerings are taken by the Parhai.—J. M. D.

(2) The following list of shrines found close to the site of a village some ten miles beyond the Karnal borders in the Ambala district illustrates Mr. Ibbetson's account of the village religion.

Khera ka than (para. 117).
Bhairon ka than (para. 117).
Kali Singh ka than (para. 124).
Bhuri Singh ka than (para. 124).
Jaur Singh ka than (para. 125).
Guga Pir ki mari (para. 125).
Saiyid ki turbat (para. 123).

Jaur Singh is probably Guga's father.—J. M. D.

hardly move. So he asked the Jamna to step back seven paces. She, in her hurry to oblige the saint, went back seven *kos* and there she is now. He gave the Panipat people a charm which dispelled all the flies from the city. But they grumbled and said that they rather liked flies; so he brought them back a thousand fold. The people have since repented. He died at Buddha Khera, and there was a good deal of trouble about burying him. He was buried first at Karnal; but the Panipat people claimed his body and opened the grave, upon which he sat up and looked at them till they felt ashamed. They then took away some bricks from the grave for the foundation of a shrine; but when they got to Panipat and opened the box, they found his body in it; so he now lies buried both at Panipat and at Karnal. There is also a shrine to him at Buddha Khera built over the wall on which he used to ride. His history is given in the Ain Akbari. He died in 724 Hijri.

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Minor saints.

Naugazas, or graves of saints said to be 9 yards long, are not uncommon. They are certainly of great length.

Kala Saiyid, the family saint of the Kaliar Rajputs at Panipat, is a great worker of wonders; and if one sleeps near his shrine, he must lie on the ground and not on a bedstead, or a snake will surely bite him. If a snake should, under any other circumstances, bite a man in the Kaliar's ground, no harm will ensue to him.

Ghosts or *Bhuts*.

128. The spirit after death undertakes a year's travels as a *paret*. But if, at the end of that time, he does not settle down and enter upon a respectable second life, he becomes a *bhut*, or if a female, *churel*; and as such is an object of terror to the whole country. His principal object then is to give as much trouble as may be to his old friends, possessing them, and producing fever and other malignant diseases. People who have died violent deaths (called *Ghazimard* or *apgat*) are especially likely to become *bhuts*; hence the precautions taken to appease the Saiyids and others in like case with them. In many villages there are shrines to people who have been killed there. Sweepers, if carelessly buried mouth upwards, are sure to become *bhuts*; so the villagers always insist upon their being buried face downwards (*munda*), and riots have occurred about the matter, and petitions have been presented to the Magistrate. The small whirlwinds that raise pillars of dust in the hot weather are supposed to be *bhuts* going to bathe in the Ganges. *Bhuts* are most to be feared by women and children, and especially immediately after eating sweets; so that if you treat a school to sweets, the sweet-seller will also bring salt, of which he will give a pinch to each boy to take the sweet taste out of his mouth. They also have a way of going down your throat when you yawn, so that you should always put your hand to your mouth, and had also better say Narayan afterwards.

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Omens and charms.

129. The people are very observant of omens (*saguns*). The following verse gives some of the principal ones :—

Kaga mirga dahine, bain bisyar ho;
Gayi sampat baore, jo garur dahine ho.

"Let the crow and the black buck pass to the right; the snake to the left. If a mantis is to the right, you will recoup your losses."

A mantis is called the horse or cow of Ram; is always auspicious, especially on *Dasehra*; and the villager will salute one when he sees it. Owls portend desolate homes. Black things in general are bad omens (*kasaun*); and if a man wishes to build a house and the first stroke of the spade turns up charcoal, he will change the site. On the other hand, iron is a sovereign safeguard against the evil eye. While a house is being built there is always an iron pot (or a *ghara* painted black is near enough to deceive the evil eye) kept on the works; and when it is finished the young daughter of the owner ties to the lintel of the door a *kangna*, consisting of an iron ring (*chhalla*) with other charms, and her father gives her Re. 1-4 for doing it. Till then the house is not inhabited. The same *kangna* is used at weddings and on other occasions. A *koil* is especially unlucky. Chief among good omens is the *dogar*, or two water pots, one on top of the other. It should always be left to the right.

Charms are in common use. The leaves of the *siras* are especially powerful; and after them, those of the mango. They are hung up in garlands with a mystic inscription on an earthen platter in the middle; and the whole is called a *totka*. The *jand* is another very sacred tree. In illness it is a good thing to have an inscription made on an earthen vessel by a *fakir*, and to wash it off and drink the water. So in protracted labour the washings of a brick from the fort *Chakabu* of Amin are potent: or, if any body knows how to draw a ground plan of the fort, the water into which the picture is washed off will be equally effective as a potion.

Superstitions.

130. Of course the superstitions of the people are innumerable. Odd numbers are lucky. *Numero Deus impari gaudet.* But three and thirteen are unlucky, because they are the bad days after death: so that *teratin* is equivalent to "all anyhow." And if a man, not content with two wives, wish to marry again, he will first marry a tree, so that the new wife may be the fourth, and not the third. So if you tread on a three-year old pat of cowdung you lose your way to a certainty. The preference for the number 5, and, less markedly for 7, is noticeable. An offering to a Brahman is always 1¼, 2½, 5, 7½, and so on, whether rupees or sers of grain. The dimensions of wells and parts of wells and their gear, on the other hand, are always fixed in so many and three quarter hands; not in round numbers. The tribal

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traditions of the people, and those concerned with numbers and areas, with chief's wives and sons, and with villages, swarm with the numbers 12, 24, 16½, 52, 84, and 360. Hindus count the south a quarter to be especially avoided, for the spirits of the dead live there. Therefore your cooking hearth must not face the south; nor must you sleep or lie with your feet towards the south except when you are about to die. To sneeze is auspicious, as you cannot die for some little time after, so, when a man sneezes, his friends grow enthusiastic, and congratulate him saying *satan jiv*—"live a hundred years;" or *Chakpadi*, a name of Devi, who was sneezed out by Brahma in the form of a fly.

It is well not to have your name made too free use of, especially for children. They are often not named at all for some little time, and when named, are often addressed as *buja* or *buji*, according to sex. If a man is wealthy enough to have his son's horoscope drawn, the name then fixed will be carefully concealed till the boy is 8 or 10 years old, and past danger. And even then it will not be used commonly, the every-day name of a Hindu being quite distinct from his real name given in his *janmpatri* or horoscope. At his marriage, however, the real name must be used.

A Hindu will not eat, and often will not grow, onions or turnips; nor indigo, for simple blue is an abomination to him. Nor will a villager eat oil or the black sesame seed, if formally offered him by another; for, if he do, he will serve the other in the next life.[1] Thus if one ask another to do something for him, the latter will reply:—"*kya, main ne tere kale til chabe hain.*" "What? Have I eaten your black sesame?" Sacred groves (*talak*) are not uncommon; and any one who cuts even a twig from them is sure to suffer for it.[2] They exist in some of the villages where wood is most scarce, but are religiously respected by the people. The Banias of the tract have a curious superstition which forbids the first transaction of the day to be a purchase on credit. It must be paid for in cash, and is called *bohni*. The age of miracles is by no means past. In 1865 a miraculous bridge of sand was built over the Jamna in this district at the prayer of a *fakir*, of such rare virtue that lepers passing over it and bathing at both ends were cured. A good many lepers went from Karnal to be cured; but the people say that the bridge had "got lost" when they got there.

Fasts and festivals.

131. Of course the greater number of the village festivals and the observances appropriate to them are common to all Hindus. But some of them are peculiar to the villages, and a

(1) In the east of Pipli, and probably in Indri also, no *zamindar* will grow *sani*, but he will allow *Lohras*, a low caste which lives by making string, to grow a patch of it on his land. This superstition dies away as one goes westwards, and *sani* is freely grown in Kaithal.—J.M.D.

(2) Tanks, too, are often set apart by an oath (*nem karna*). Thereafter they cannot be used for irrigation, and there is less fear of the drinking water failing—J.M.D.

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description of them will not be out of place. The ordinary *Diwali* is on the 14th of Katik, and is called by the villagers the little *Diwali*. On this day the *pitr* or ancestors visit the house. But the day after, they celebrate the great or *Gobardhan Diwali*, in which Krishna is worshipped in his capacity of cowherd, and which all owners of cattle should observe. On the day of the little *Diwali* the whole house is fresh plastered. At night lamps are burnt as usual, and the people sit up all night. Next morning the house-wife takes all the sweepings and old clothes in a dust pan, and turns them on to the dunghill, saying "*daladr dur ho,*" *daladr* meaning thriftless, lazy, and therefore poor. Meanwhile the women have made a *Gobardhan* of cowdung, which consist of Krishna lying on his back surrounded by little cottage loaves of dung to represent mountains, bristling with grass stems with tufts of cotton or rag on the top for trees; and little dung balls for cattle, watched by dung men dressed in bits of rag. Another opinion is that the cottage loaves are cattle, and the little balls calves. On this is put the churn-staff and five whole sugar-canes, and some parched rice and a lighted lamp in the middle. The cowherds are then called in, and they salute the whole and are fed with parched rice and sweets. The Brahman then takes the sugar-cane and eats a bit; and till that time nobody must cut, or press, or eat cane. Parched rice is given to the Brahman; and the bullocks have their horns dyed, and get extra well fed.

Four days before the *Diwali*, or on the 11th of Katik, is the *Devuthani Gyaras*, on which the gods wake up from their four months' sleep, beginning with the 11th of Sarh, and during which it is forbidden to marry, to cut sugar-cane, or to put new string on to bedsteads on pain of a snake biting the sleeper. On the night of this day the children run about the village with lighted sticks and torches. On the 15th and 11th of Phagan the villages worship the *aonla* tree or phyllanthus emblica, mentioned by Huen Tsang as being so abundant beyond Dehli. This tree is the emblic myrobolus, a representation of the fruit of which is used for the finial of Buddhist temples. Its worship is now connected with that of Shiv; Brahmans will not take the offerings. The people circumambulate the tree from left to right (*prikamma*), pour libations, eat the leaves, and make offerings, which are taken by the *Kanphata Jogis*. Fasts are not much observed by the ordinary villager, except the great annual Fasts; and not even those by the young man who works in the fields, and who cannot afford to fast. *Gur*, flour made from *singhara* or water calthrop, from the *sanwak* grain, wild swamp rice, the seeds of cockscomb (*chaulai*), and milk, in fact almost anything that is not included under the term *naj* or grain, may be eaten on fasts; so that the abstinence is not very severe.

Karnal Mission.

132. The Karnal Mission is connected with the Society for the Propagation of the Gospel in Foreign parts, and is a

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branch of the Dehli Mission. The Mission was begun in Karnal in 1865, and work is also carried on in Panipat and Kaithal. The staff consists of 2 *Zanana* Missionaries, 1 Medical Missionary and her assistant, and 3 Christian teachers in girls' schools and *Zananas*. There are also 1 native clergyman and 3 readers. The operations of the Mission include *Zanana* teaching, girls' schools, and a Hospital and Dispensary for women and children. 5,267 cases were attended in 1889. There is also a small school for the sons of *Mochis*, and a shop for the sale of religious and secular books. The number of Native Christians is men 7, women 5, children 13, total 25.

SECTION D.—TRIBES AND CASTES.

Statistics and local distribution of tribes and castes.

133. Table No. IX gives the figures for the principal castes and tribes of the district, with details of sex and religion, while Table No. IXA shows the number of the less important castes. It would be out of place to attempt a description of each. Many of them are found all over the Panjab, and most of them in many other districts, and their representatives in Karnal are distinguished by no local peculiarities. Some of the leading tribes, and especially those who are important as land-owners or by position and influence, are noticed in the following sections; and each caste will be found described in Chapter VI of the Census Report for 1881. The Census statistics of caste were not compiled for *tahsils*, at least in their final form. The figures for the chief tribes in the Indri *pargana*, which were compiled from the Census papers at the recent settlement, are given below :—

Land-owning Tribes.		Others.	
Rajput	13,509	Bania	4,454
Ror	9,359	Chamar	9,430
Brahman	8,104	Chuhra	5,563
Jat	7,952	Teli, Kumhar, Badhi, Kahar ...	15,392
Kamboh	6,427		

The proportion of the total area owned by the 5 tribes shown in the first column is :—

Rajputs ... ... 32 per cent.
Rors ... ... 17½ "
Jats ... ... 15½ "
Kambohs ... ... 4½ "
Brahmans ... ... 4½ "

Of course many Brahmans own little or no land. The chief

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landowners in Kaithal are Jats (42 per cent.), Rajputs (22 per cent.), Rors (8 per cent.), and Gujars (7 per cent.).

134. The Tagas are probably the oldest of the existing inhabitants of the tract; they originally held a great part of the Khadir, and now hold most of *pargana* Ganaur; and as, wherever the river has not passed over the land within recent times, Tagas are still in possession, it is not improbable that they were driven from much of their old territory by changes in the Jamna. The Rajput bards and the traditions of the people tell us that in old days Chandel Rajputs held Kaithal and Samana, and had local head-quarters at Kohand, whence they ruled the neighbouring portion of the tract. The Barah Rajputs held the country round Asandh, Safidon, and Salwan; while the Pandirs held Thanesar and the Nardak, with capitals at Pundri, Habri, Pundrak, and Churangarh (Churni), which last must once have been a position of great importance, as it is situated on a great bend on the old bank of the Jamna. The Mandhar Rajputs came from Ajudhia, and, settling in Jindh, expelled the Chandel and Barah Rajputs and took possession of their country, the former going towards the Siwaliks, and the latter beyond the Ghagar. The Mandhars fixed their capital at Kalayat in Patiala, whence they settled the local centres of Asandh, Safidon, and Gharaunda.

The Pandirs were expelled by the Chauhan Rajputs from Sambhal in Muradabad under the leadership of Rana Har Rai, and fled beyond the Jamna. The Chauhans made Jundla their head-quarters, and held a great part of the Nardak, and also large possessions in the Doab. The Tunwar Rajputs originally held Panipat and the country round, but would seem to have been dispossessed by Afghans in the early days of the Muhammadan conquest. The old boundary of the Tunwars, Chauhans, and Mandhars in Kaithal used to meet in Pai (now a Jat village). Pai belonged to the Mandhars. Habri to the east was and is a Chauhan village, and Mundri, which is now a Ror village, was Tunwar. The Tunwars also held Khurana, Pharal, and Rasulpur, in which last they had a large fort. Probably the Tunwars once held the whole Naili tract and were turned out of part of it by Mandhars. They now hold the Bet of the Markanda in Ambala and a number of estates in the Pehowa *pargana* of Kaithal. Outside Pehowa their only possession in Kaithal is the large village of Pharal. They still own a section of the town of Panipat. The country of the Tunwars or Tuhars is popularly known as Tuharwara. The Chauhans either alone or in conjunction with their former dependents hold six or seven villages round about Habri. The Chauhan and Mandhar traditions are given in greater detail in paras. 143—144.

The Rajput chiefs (Ranas and Rais) would seem, subject to the payment of tribute to Dehli, to have enjoyed almost independent authority up to the time of the consolidation of the Mughal Empire under Akbar, or even later; and squeezing the

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Ranas was a favourite occupation of the old Afghan Emperors. Their degradation to the position of mere village chiefs is attributed to Aurangzeb, who forcibly converted many of them to the Muhammadan faith.

In the Ain Akbari the principal castes of *pargana* Karnal are stated to be Ranghars and Chauhans; the word *Ranghar*, now used for any Musalman Rajput, being probably applied to the Mandhars, many of whom had adopted Islam. Those of *pargana* Panipat are given as Afghans, Gujars, and Ranghars. The surrounding castes were Tagas in Ganaur; Afghans and Jats in Sunpat; Jats in Kutana; Rajputs, Ranghars, and Jats, in Safidon; Ranghars, in Pundri; Ranghars and Jats in Habri; and Ranghars and Tagas in Indri. The Pandirs held Bhatinda, and the Barahs the country about Samana. Mr. Ibbetson writes in his Settlement Report of *tahsil* Panipat and *pargana* Karnal:—

"Local tradition has enabled me to make a rough approximation to the tribal distribution at the time of the Ain Akbari (1590 A.D.), and I give it in Map No. V. I think some reliance may be placed upon the *general* features of the map. In some cases the descendants of the former inhabitants still periodically visit the shrines existing on the old ancestral site; and in particular, tombs in the unmistakeable architecture of the Afghans tell every here and there of people who have now disappeared. It will be observed that Afghans then held a large part of the lower Khadir. They had also formerly held a good deal of the Bangar, which was occupied at the time we speak of by Gujars. At present there is only one Afghan village, besides part of the city of Panipat, in the whole tract; and I think the total disappearance of this caste must be accounted for by changes in the river. It is to be noticed that they have been replaced very largely by Gujars; and I do not think Gujars were ever in a position, as Jats most undoubtedly were, to acquire territory by conquest in this part of the country, especially from Afghans. I cannot help thinking it probable that the Afghans left their Bangar villages for the more productive Khadir soil as it was left available by changes in the river; and that they were again, after the time of Akbar, driven out by the branch of the Jamna already mentioned as sweeping over the parts held by them. The parts near Rakasahra and Barana have, as I have already pointed out, escaped river action altogether in recent times, and are still largely occupied by the original Taga inhabitants. But in the intermediate parts of the Khadir the people have only been settled for some eight generations, which, at the usual Indian estimate of 25 years for a generation, would bring their first arrival well this side of the date of the Ain Akbari."

The Gujars were, as usual, intimately connected with the Rajputs, and were for the most part settled by them in portions of their territory. The Gujars who originally held the country about Naraina were Chokar Gujars; those about Sutana and Nain were Chamains; while those of Kohand and Bapauli were Rawals. The two first clans have been largely replaced by Jats and Rors; while the last has spread over the parts of the Khadir formerly occupied by Afghans.

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Local organization of the tribes.

135. The primary sub-division of the tribes is into *thapas* or *thambas*. A tribal community having obtained possession of a tract, in course of time it would be inconvenient for them all to live together, and a part of the community would found a new village, always on the edge of a drainage line from which their tanks would be filled. This process would be repeated, till the tract became dotted over with villages all springing originally from one parent village. The people describe the facts by saying that, of several brothers, one settled in one village and one in another; but this no doubt means that the parts of the community that migrated consisted of integral families or groups of families descended in one common branch from the ancestor. In this way were divided the many villages known by the same name, with the addition of the words *kalan* and *khurd*, big and little. This by no means implies that *kalan* is *larger* than *khurd*, but only that the elder branch settled in *kalan*. The group of villages so bound together by common descent forms a *thapa*, and sub-feudal ties are still recognized, the village occupied by the descendants of the common ancestor in the eldest line being, however small or reduced in circumstances, still acknowledged as the head. To this day, when a headman dies, the other villages of the *thapa* assemble to instal his heirs, and the turban of the parent village is first tied on his head. When Brahmans and the brotherhood are fed on the occasion of deaths, &c., (*meljor*), it is from the *thapa* villages that they are collected; and the Brahmans of the head village are fed first, and receive double fees. So among the menial castes, which still retain an internal organization of far greater vitality than the higher castes now possess, the representative of the head village is always the foreman of the caste jury which is assembled from the *thapa* villages to hear and decide disputes. In old days the subordinate villages used to pay some small *chaudhrayat* to the head village on the day of the great *Diwali*. The head village is still called "great village," the "turban village," "the village of origin," or "the *tika* village," *tika* being the sign of authority formally impressed in old days on the forehead of the heir of a deceased leader in the presence of the assembled *thapa*. Mr. Ibbetson says:—

"In one case a village told me that it had changed its *thapa*, because there were so many Brahmans in its original *thapa*, that it found it expensive to feed them. I spoke to the original *tika* village about it, and they said that no village *could* change its *thapa*. '*Put kuput hosakta; magar ma kuma nahin hosakti.*' 'A son may forget his sonship; but not a mother her motherhood.'"

Admission of strangers into the tribal organization.

136. But the *thapa* is not wholly confined to the original tribe which founded it. A man without sons often settled his son-in-law in the village as his heir; and as the clans are exogamous, the son-in-law was necessarily of a different family. So, too, a man settled a friend by giving him a share of his

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land. The strangers so admitted have in many cases separated their land off into separate villages; but just as often they still live in the old village, and in some cases have overshadowed the original family. It is curious to note how the fiction of common descent is, even in these cases, preserved, as has been so well insisted upon by Maine. The man who thus takes a share of another's land is called *bhumbhai*, or "earth-brother;" and if a landowner of a clan other than that of the original owners is asked how he acquired property in the village, his invariable answer is "*bhai karke basaya*," "they settled me as a "brother."

But it is not only by fictitious relationship that strangers have obtained admission into *thapas*. In some cases the pressure of the troublous times which were so frequent in former days has induced two weak groups of adjoining villages to unite for common defence. And still more frequently, people settled originally as cultivators have, by the lapse of time or by the dying out of the original owners, acquired proprietory rights. Village boundaries were before our times by no means so well defined as they are now, as is shown by the boundaries often zig-zagging in and out of adjoining fields held by different villages, and by contiguous villages sometimes having their lands intermixed. Boundaries, where they lay in uncultivated land held by villages of the same tribe, were probably almost unknown; for even now the cattle graze in such cases almost independent of them.

It was, and is still, a common custom to settle cultivators in a small outlying hamlet (*garhi* or *majra* or *kheri*) in the village area to cultivate the surrounding land; and the old maps and papers show that it was very much a matter of chance whether, when we made a survey and record of rights in land, these were marked off as separate villages or not. It will be shown in the succeeding section of this chapter that we confused cultivating possession and consequent liability for revenue with proprietory right; and, when these small hamlets were held by cultivators of a different caste from those of the parent village, they were generally marked off and declared to be their property. This is particularly the case with Rors, many small villages of which caste are dotted about among the Rajputs of the Nardak of *pargana* Karnal. These were originally small communities settled by the Rajputs as cultivators in their land to assist them to bear the burden of the Government demand. The Rors in Panipat have, almost in every instance, been similarly settled by former Gujar inhabitants, of whom a few families still remain in many villages as the sole representatives of the old owners. Brahmans too have acquired land in many villages by gifts made in the name of religion. Where the Sikhs got a strong hold of the country, they followed their favourite policy of carving out new estates in the waste of the older villages

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and settling them with low class but industrious cultivators, and in this way the *thapa* organization was weakened.

Imperial *thapas*.

137. The *thapas* above described are those based upon tribal organization, and are still recognized by the Rajputs and more or less by the people generally. But the Imperial revenue system, in adopting the tribal *thapa* as one of its units, somewhat modified its constitution. The revenue was primarily assessed and collected by the local *amil*, an Imperial authority. But he worked principally through the *chaudhris* or local heads of the people, who represented large sub-divisions of the country, based, as far as possible, upon tribal distribution. Thus *chaudhris* existed in old days at Jundla, Panipat, Bala and other places, and received an allowance called *nankar* in consideration of the duties they performed. They again worked almost entirely by *thapas* the assessment being fixed for a whole *thapa*, and being distributed over the constituent villages by the headmen of the villages, presided over by those of the *tika* or chief village. These revenue *thapas* coincided generally with the tribal *thapas*; but they occasionally varied from them from considerations of convenience. Old *pargana* Panipat contained 16½ *thapas*, half Jaurasi having been separated by Farrukhsir, as stated in Chapter III.

Division of tribes into clans: exogamy and endogamy.

138. The above remarks apply to the territorial organization of the tribes. But the internal organization of the tribe is still more important as bearing upon its social relations. The tribe as a whole is strictly endogamous; that is to say, no Jat can, in the first instance, marry a Gujar or Ror, or any one but a Jat and so on. But every tribe is divided into clans or *gots*; and these clans are strictly exogamous. The clan is supposed to include all descendants of some common ancestor, wherever they live. Mr. Ibbetson writes:—

"I have had some doubts whether many of the clans do not take their present names from the places from which they have spread. But I think the reasons against this theory are, on the whole, conclusive; and that the similarity of name, which not very unfrequently occurs, is owing to the village being called after the clan, and not the clan after the village. Of course local nick-names (*al, byong*) are often given, and these may in some cases have eventually obscured the original clan name."

Traces of phratries,* are not uncommon. Thus the Mandhar, Kandhar, Bargujar, Sankarwal, and Panihar clans of Rajputs sprang originally from a common ancestor Lao and cannot intermarry. So the Deswal, Man, Dalal, and Siwal clans of Jats, and again the Mual, Sual, and Rekwal clans of Rajputs, are of common descent, and cannot intermarry.

The fact that many of the clans bear the same name in different tribes is explained by the people on the ground that a

* "The phratry is a brotherhood, as the term imports, and a natural growth from the organization into gentes. It is an organic union or association of two or more gentes of the same tribe for certain common objects. These gentes were usually such as had been formed by the segmentation of an original gens."—*Morgan's Ancient Society*, page 88.

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Division of tribes into clans: exogamy and endogamy.

Bachhas Rajput, for instance, married a Gujar woman, and her offspring were called Gujars, but their descendants formed the Bachhas clan of Gujars. This sort of tradition is found over and over again all over the country; and in view of the almost conclusive proof we possess that descent through females was once the rule in India, as it has been probably all over the world, it seems rash to attribute all such traditions merely to a desire to claim descent from a Rajput ancestor. It would appear that there are actually Rajput clans existing, sprung from Bhat, Brahman, and Carpenter fathers and Rajput women. At present the offspring of a mixed connection (marriage proper is impossible) take the caste of the father; but those of the pure blood will not intermarry or associate with them. Some traces of totemism are still to be found; and, as gentile organizations have almost always been closely connected with totems, it is probable that further inquiry, and especially an etymological examination of the names of the clans, would greatly extend their numbers. This also would account in many instances for clans in different tribes bearing the same name. Thus, the Jaglan Jats worship their ancestor at a shrine called *Deh*, which is always surrounded by *kaim* trees; and if a woman married in a Jaglan family passes a *kaim* tree, she will cover her face before it as before an elder relation of her husband. Again, the Mor Jats will not burn the wood of the cotton plant.

Exogamy among the clans.

139. Every clan is exogamous; that is, while every man *must* marry into his own tribe, no man *can* marry into his own clan. But this is by no means the only limitation imposed upon inter-marriage. In the first place, no man usually marries into a family, of *whatever* clan it may be, that is settled in his own village or in any village immediately adjoining his own. The prohibition is based upon "*simjor ki baradari*," or the relationship founded upon a common boundary, and is possibly a survival from marriage by capture. The old rule is becoming less rigid, especially among Musalmans, but two social reasons combine to strengthen its vitality :—(1) There is the importance of marrying your daughter where you can get grazing for your cattle in seasons of dearth. For instance in Kaithal Jats of the Bangar and Jats of the Naili intermarry with advantage to both sides. (2) There is the important object of getting rid of your father-in-law. If you live near him your wife always wants to visit her parents, and her filial promptings lead to expense and inconvenience. This limitation on intermarriage with neighbours is further extended by the Rajputs, so that no man of them can marry into any family living in the *thapa*, into any family of which his father, grandfather, or great-grandfather married.[1] Thus, if a Mandhar Rajput

(1) In Indri the Chauhans say they avoid their own *byong* and *got* (Bachchas) and also their maternal grandfather's *thamba* in marriage. The restrictions as regards inter-marriage between members of the same *got* appear to be breaking down. The Mandhars in Kaithal avoid their own tribe and maternal grandfather's *thamba*.—J.M.D.

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married a Chauhan Rajput of *thapa* Jundla, his son, grandson, and great-grandson would not be able to marry any Chauhan of any village in the Jundla *thapa*. But beyond this, and the prohibition against marrying within the clan, the Rajputs have no further limitations on inter-marriage. Among the other castes the *thapa* is not excluded; but no man can marry into any family of the clan to which his mother or his father's mother belongs, wherever these clans may be found.[1] The Gujars, however, who are generally lax in their rules, often only exclude such persons of these clans as live in the individual village from which the relation in question came.

Social intercourse among tribes.

140. Broadly speaking no superior tribe will eat or drink from the hands or vessels of an inferior one, or smoke its pipes, but the rule is subject to exceptions, which are noted in para. 229 of Mr. Ibbetson's Settlement Report.

Jats, Gujars, Rors, Rahbaris (a camel grazing caste), and Ahirs (a shepherd caste) eat and drink in common without any scruples, and they used to smoke with carpenters, but are ceasing to do so. Musalmans have lately become much less strict about these rules as governing their intercourse among themselves, and many of them now eat from any respectable Musalman's hand, especially in the cities. And, subject strictly to the above rules, any Musalman will eat and drink without scruple from a Hindu; but *no* Hindu will touch *food* from *any* Musalman, and will often throw it away if only a Musalman's shadow falls upon it, partly perhaps because Musalmans eat from earthen vessels, which no Hindu can do unless the vessel has never been used before. Brahmans and Rajputs will not eat from any one below a Jat, Gujar, or Ror; while these three tribes themselves do not, as a rule, eat or drink with any of the menial castes; and the following castes are absolutely impure owing to their occupation and habits, and their mere touch defiles food :—Leather-maker, washerman, barber, black-smith, dyer (*chhimpi*), sweeper, *dum*, and *dhanak*. The potter is also looked upon as of doubtful purity. The pipes of a village, being often left about in the common rooms and fields, are generally distinguished by a piece of some thing tied round the stem—blue rag for a Musalman, red for a Hindu, leather for a *chamar*, string for a Sweeper, and so on so that a man wishing for a smoke may not defile himself by mistake. Gur and most sweetmeats can be eaten from almost any body's hand, even from that of a leather-worker or sweeper, but in this case they must be whole, not broken.

The Dehia and Haulania factions.

141. There is a very extraordinary division of the non-Rajput tribes in the Karnal *pargana* and Panipat and the neighbouring parts of Dehli and Rohtak into the two factions

(1) Jats and Gujars of Kaithal and Indri and Rors of Indri avoid in marriage the *gots* of (1) father, (2) mother, (3) father's mother, (4) mother's mother. But many of the Kaithal Rors will marry girls belonging to the same *got* as their maternal grandmother.—J.M.D.

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The Dehia and Haulania factions.

(*khap*) of Dehia and Haulania, respecting the origin of which no very satisfactory information is forthcoming. The Dehias are called after a Jat clan of that name, with its head-quarters about Bhatganw in Sunpat, having originally come from Bawana near Dehli. The Haulania faction is headed by the Ghatwal or Malak Jats whose head-quarters are Dher ka Ahulana in Gohana, and who were, owing to their successful opposition to the Rajputs, the accepted heads of the Jats in these parts (see para. 145). Some one of the Emperors called them in to assist him in coercing the Mandhar Rajputs, and thus the old enmity was strengthened. The Dehia Jats, growing powerful, became jealous of the supremacy of the Ghatwals, and joined the Mandhars against them. Thus the countryside was divided into two factions; the Gujars and Tagas of south Karnal, the Jaglan Jats of *thapa* Naultha, and the Latmar Jats of Rohtak joining the Dehias; the Huda Jats of Rohtak, and most of the Jats of the southern half of the district except the Jaglans, joining the Haulanias. In the mutiny disturbances took place in the Rohtak district between these two factions, and the Mandhars of the Nardak ravaged the Haulanias in the south of the tract. And in framing his *zails* the Settlement Officer had to alter his proposed division so as to separate a Dehia village which he had included with Haulanias, and which objected in consequence. The Dehia is also called the Jat, and occasionally the Mandhar faction. The Jats and Rajputs seem, independently of these divisions, to consider each other, tribally speaking, as natural enemies; and one is often assured by Jats that they would not dare to go into a Rajput village at night.

The Rajputs.

142. In describing the principal tribes of the district, we will begin with the Rajputs. It is hardly necessary to say much about their well known tribal characteristics. They are fine, brave men[1] and retain the feudal instinct more strongly developed than any other non-menial caste, the heads of the people wielding extraordinary authority. They are very tenacious of the integrity of their communal property in the village land, and seldom admit strangers to share in it. They are often lazy and always proud, and look upon manual labour as derogatory, much preferring the care of cattle, whether their own or other people's. In the canal and Khadir parts they have abandoned pastoral for agricultural pursuits; but even here they will seldom, if ever, do the actual work of ploughing with their own hands; while the fact that their women are kept strictly secluded deprives them of an invaluable aid to agriculture.[2] In the Nardak a great part of the

(1) It is a pity that efforts are not made to enlist Rajputs from the Nardak in our regiments. The Hariana Rajputs of Hissar are often found in the army, but Karnal as a recruiting ground is almost barren, probably because no attempt is made to work it.—J.M.D.

(2) The poor cultivation in many Rajput estates is largely due to the fact that the men have to do much out-door work, apart from actual field work, which in a Jat village would be done by women.—J.M.D.

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actual work of cultivation is done by other castes. They are, of course, cattle-stealers by ancestral profession; but they exercise their calling in a gentlemanly way, and there is certainly honour among Rajput thieves. Musalman Rajputs are called *Ranghars* by other castes and *Chotikats* by their Hindu brethren, from *choti*, the Hindu scalp-lock, which the Musalman does not preserve. But both terms are considered abusive, especially the latter. The principal clans are the Chauhans and the Mandhars.

The Mandhar legend.

143. The Mandhars were settled in very early days in the country about Samana; for Firoz Shah chastised them, carried off their Ranas to Dehli, and made many of them Musalmans. The Safidon branch obtained the villages now held by them in the Nardak in comparatively late times by inter-marriage with the Chauhans. And though they expelled the Chandel Rajputs from Kohand and Gharaunda when they first came into these parts, yet the Chandels re-conquered them; and the final occupation by Mandhars coming direct from Kalayat in Patiala is possibly of comparatively recent date.

The *Jagas* (bards) of the Rajputs come every three or four years from Jaipur and record the births that have occurred in Rajput families since their last visit. According to Bakhtawar, the Mandhar Jaga, the Mandhars are descendants of Laokumar, son of Ramchandra, who was adopted by his uncle Lachhman. The descendants of Lao ruled successively in Garh Gwaler, Nikatarpuri, Ajudhia, Bijapur, Kachwaglana, and Kamapahari. Raja Jan left Kamapahari and came to bathe in Kurukshetra. At a *tirth* near Jindh his wife bore a son Jindhra, who afterwards in S. 891 founded Jindh. His grandson Sadh took Kaithal from the Chandel Rajputs in S. 1093. Sadh begot Bampra, who begot 3 sons Kallu, Kalu, and Mamraj. Kallu settled in Kalayat, Kalu in Rajaundh, and Mamraj in Kaithal. Kallu's son Rana Gurkha stormed the 3 forts of Asandh, Safidon, and Salwan, expelling the Barah Rajputs and settled in Asandh in S. 1131 (the bard then proceeds to give a list of the various descendants of Rana Gurkha, and the villages which they founded). By popular tradition the Mandhars held 360 kheras or villages between Kalayat and Gharaunda, many of which are now held by Jats. The Jaga says nothing about any struggles between the Mandhars and Tunwars, but the latter, as noted in para. 134, were probably pushed back out of part of the Sarusti Naili by intruding Mandhars.

The Chauhan legend.

144. The Chauhans are all sprung from the original people who settled at Jundla. They all claim descent from Rana Har Rai and it is probable enough that the eldest line, in which authority descended from Rana Har Rai, has been preserved in its integrity. According to this, 19 generations, equivalent to 475 years, have intervened since the Chauhan conquest, which would fix it at about the time of Bahlol Lodi.

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The Chauhan legend.

The Chauhan tradition as told by the tribal bard first recites the famous legend of the birth of the Chauhan (one of the 4 agnikula clans) from the Agnikund at Mt. Abu. The story is given at full length in the 7th chapter of Tod's Rajasthan. The conquest of these parts by the Chauhans is said to have been effected by Rana Har Rai. The Rana who had been bathing in the Ganges returned through the sacred Kurukshetra then held by Pandirs, who had 4 forts, Habri, Pundri, Pundrak, and Churangarh. A quarrel arose between Rana Har Rai and the Pandirs. In S. 891 he fixed his head-quarters at Jundla, which he founded, naming it Jundla on account of the number of *jand* trees which grew round it. Rana Har Rai conquered Habri, Pundri, and Pundrak, but had to call in his uncles Dalu and Jagar to assist him in storming Churangarh (Churni), where the Pandirs made a last stand, before they were driven to the east of the Jamna, where they now live. Dalo got 48 villages including Sandhir, Jagar 12, and Pinjora, the son of a 3rd uncle, 24 villages including Mohna and Tauntha. Rana Har Rai married 2 Rajput wives and 5 wives of inferior tribes, a Rorni, a Jatni, a Jogin, a Nain, and a Gujari. The Rors of Amin and Raipur, who belong to the Dopla *got*, are his descendants by the Rorni wife. The descendants of the Jat and Gujar wives appear to have settled to the east of the Jamna. The Rajputs of the Mustafabad *pargana* in Jagadhri have sprung from the Jogan and Nain wives. The sons by Rajput women founded various villages, Kalia settling in Karnal and Kaura in Habri. The Chauhans of Pipli, Jagadhri, and Naraingarh are also descended from Rana Har Rai. The Chauhans of Karnal are all of the Bachchas *got*. Chauhans will take the daughters of Pandirs for their sons, but they will not give their own girls to Pandirs. They are a fine race, and they are not all bad cultivators, and those who are may not always continue so. The Chauhans of Padhana, who were described at the first regular settlement as being notorious for committing robberies on the Grand Trunk Road, now cultivate their lands with the greatest diligence and success. The Karnal Rajputs are a proud race, whom the rule of the Sikhs and our own have robbed of much of their ancestral power. They are much hampered by unchangeable tribal customs and find it hard to adapt themselves to the altered conditions of life. But it is worth our while to treat them with patience and consideration and to carefully preserve the remains of a local influence, which is still considerable.

The Jats.

145 The Jats are pre-eminently the agricultural caste of the tract and, with the exception of the Rors and Kambohs, and of the Rains and Malis who are practically market gardeners, are the best cultivators. A Jat, when asked his caste, will as often answer "*zamindar*" as "Jat." They are a fine stalwart race. Mr. Ibbetson measured one at Didwari 6 feet 7 inches high and 42½ inches round the chest. They are notorious for their independence, acknowledging to a less degree than any other caste the authority of their headmen.

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The Jats.

They hold several tribal groups of villages; but they also own parts of villages almost all over the tract save in the Gujar and Rajput portions. The Kaithal Bangar and Andarwar and the tracts in the same *tahsil* flooded by the Umla and Ghagar are almost purely Jat settlements, and they own about ⅘ths of the Powadh Circle, where many of them are Sikhs by religion. They seem to have held parts of the country about Samana in very early days, and, as already noted, that part certainly formed a part of an early Indo-Scythian kingdom. The Jats of the district seem to have come partly from the Bagar, where they were in force 700 years ago. In no case have Jats settled from across the Jamna. The Jats are not mentioned as a prominent caste of the tract in Akbar's time, and probably gained a footing during the breaking up of the Mughal dynasty, when they became an important element in the politics of the time. The Jats of the tract are almost without exception Hindus. Those who have become Musalmans are called *Mula Jats,* and are only found in two or three villages; and there even are only individual families, generally said to be descended from hostages taken in infancy by the Musalman rulers and circumcised by them. The principal clans are as follows :—

Jaglan, sprung from Jagla, a Jat of Jaipur, to whom there is a shrine in Israna at which the whole *thapa* worships. They hold the 12 villages (*barah*) of *thapa* Naultha, and come from Ludas, in Sirsa or Hissar.

Ghanghas, sprung from an ancestor called Badkal, whom they still worship, and who has a shrine in Puthar. They hold the *thapa* of Mandi, and come from Dhanana near Bhiwani, in the Bangar.

Ghatwal or *Malak,* tracing their origin from Garh Ghazni, and holding Bawana, whether they came from Ahulana in Gohana. They hold Ugra Kheri and the villages settled from it, and are scantily represented in this district. In the old days of Rajput ascendancy the Rajputs would not allow Jats to cover their heads with a turban, nor to wear any red clothes, nor to put a crown (*mor*) on the heads of their bridegrooms, or a jewel (*nath*) in their women's noses. They also used to levy seignorial rights from virgin brides. Even to this day Rajputs will not allow inferior castes to wear red clothes or ample loin clothes in their villages. The Ghatwals obtained some successes over the Rajputs, especially over the Mandhars of the Doab, near Deoban and Manglaur, and over those of the Bagar near Kalanaur and Dadri, and removed the obnoxious prohibitions. They then acquired the title of *Malak* (master) and a red turban as their distinguishing mark; and to this day a Jat with a red *pagri* is most probably a Ghatwal.

Deswal, who hold Korar, Madlauda, Ataola, Mahaoti, and other villages, and came from Rohtak, where they have their head-quarters in the village of Mandauthi.

The Jats.

Katkhar or *Gahlaur*, perhaps the most powerful Jat clan in the tract, holding the 12 villages (*barah*) of Jaurasi. They came from Mot Pali in Hissar.

Sandhus worship Kala Mehar or Kala Pir their ancestor, whose chief shrine is at Thana Satra in Sialkot, the head-quarters of the Sandhus. They hold Gagsina, Khutpura, and other villages; and have come here *via* Phul Maharaj in Patiala.

Halawat, who hold Babail and other villages, and came from Dighal in Rohtak. They worship a common ancestor call Sadu Deb.

The chief remaining clans are shown below :—

No.	Clan.	Head-quarters.	Place of origin.
1	Jun ...	Kurlan and Dimana ...	Dehli.
2	Rathi ...	Manana and Bal Jatan ...	Bahadurgarh in Rohtak.
3	Sahrawat ...	Karhas, Palri ...	Dehli or its neighbourhood, *via* Rohtak.
4	Kharab ...	Nara ...	Dehli, *via* Khani Kheri in Hansi.
5	Narwal ...	Waisar and Kheri Naru ...	Kathura in Rohtak.
6	Nandal ...	Dahar, &c. ...	Bohar in Rohtak.
7	Dehia ...	Idiana ...	Rohna in Rohtak.
8	Kundu ...	Shahpur Kayath (Rohtak),	Tatauli in Rohtak.
9	Kali Ramni ...	Padla, Bazida, and Balana,	Garh Ghazni, *via* Sirsa: Patan (Pak Patan?); Garhwal; Rawar, in Rohtak; and Kont, near Bhiwani.
10	Phor or Dhaliwal.	Dhansauli ...	Garh Ghazni, *via* Dhola *thapa* near Lahore.
11	Man ...	Bala and Ghogripur ...	Bhatinda in Malwa, *via* Ganurkhera beyond Hissar.
12	Bainiwal ...	Kavi, Bhabpura ...	Bhadra Churi, near Bikanir, *via* Rattak in Kaithal.
13	Ruhal ...	Beholi, &c. ...	Bhiwani.
14	Nain ...	Bhalsi, Bal Jatan ...	Bighar in Bikanir. Marry in Kasendhu (Rohtak) and Jindh.
15	Lather ...	Phusgarh ...	Karsaula in Jind.
16	Kadian ...	Siwa ...	Chimni, near Beri in Rohtak, *via* Bajana in Sunpat.
17	Dahan ...	Shahrmalpur ...	Salwan in Kaithal.
18	Dhaunchak ...	Binjhaul ...	Marry in Lat in Chauganw of Rohtak.
19	Kalher ...	Dabkauli ...	
20	Sire ...	Chika ...	Claim to have been originally Tuhar Rajputs from Dehli.
21	Dhul ...	Pai ...	
22	Mor ...	Chhatar ...	

The Gujars.

146. The Gujars are a notorious thieving tribe; and, as a rule, their cultivation is of the most slovenly description,[1] though in many of the Khadir and canal villages they have really applied themselves in earnest to agriculture. They have a habit of breaking up far more land than their numbers

(1) There are exceptions. Keorak, the chief Gujar estate in Kaithal, is very well cultivated.—J.M.D.

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and appliances can properly cultivate; and though their women will go to the well, bring food to the workers in the field, pick cotton, and do other light work, yet they will not weed or do any really hard labour in the fields like the Jat women. The difference between a Gujar and a Rajput thief was well put by a villager as follows:—"A Rajput will steal "your buffalo; but he won't send his father to say he knows "where it is and will get it back for Rs. 20, and then keep "both the Rs. 20, and the buffalo. The Gujar will." The local opinion of the Gujar is embodied in the proverb—

Kutta, billi do.	*Yih char na ho,*
Ranghar, Gujar do;	*To khule kiware so.*

"The dog and the cat, two; the Ranghar and Gujar, two. If it were not for these four you might sleep with your door open." Again, "*Jitte dekhe Gujar, itte deyie mar;*" or "wherever you see a Gujar, beat him." The Gujars are, like the Rajputs, singularly unwilling to admit strangers to property in their villages. They are closely allied with the Rajputs; and their possession of parts of the Bangar was probably contemporaneous with that of the Mandhars, parts of whose conquests, such as Kohand, were given them. But in the Khadir they have succeeded Afghans in comparatively recent times, save in a very few old villages. There is a small group of Gujar villages to the N.-W. of the town of Kaithal, including the important estate of Keorak. The principal clans are:—

Rawal.—This clan claims descent from a Rajput called Dhundpal from beyond Lahore, who married a daughter of a Gujar called Ghokar. It is part of the Ghokarbansi clan, and takes its specific name from Rua Sarsa near Lahore. In one village they say that the ancestor was a Khokhar Rajput, and this is probably the better form of the tradition. They settled in Rana Khera, (now Rajapur), but moved thence to Kabri and Kohand, where they held a *barah* of 12 villages; and they also held Bapauli, whence they eventually settled the 27 villages (*sataisi*) of the Khojgipur *thapa* in the Khadir. They still hold the Khadir villages; but have lost most of those near Kohand.

Chokar.—This clan comes from Jewar *thapa*, beyond Mathra, *via* Bali Kutbpur, in Sunpat. They used to hold a *chaubisi* (24 villages) with Namaunda their head-quarters, and are probably very old inhabitants. They have been to a great degree displaced by Jats.

Chamain.—This clan claims descent from a Tunwar Rajput by a Gujar mother; and the real gentle name is said to be Tunwar, Chamain being only a local appellation. They came from Dehli and settled in Nain and Sutana and the neighbouring villages; and are certainly very old inhabitants, very

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possibly having emigrated when expelled from the neighbourhood of Dehli by Sher Shah a few years after the Chauhan settlement. They have been largely dispossessed by Rors.

Kalsan.—This clan claims descent from Rana Har Rai, the Chauhan of Jundla, by a Gujar wife. They had given them a part of his conquests in the Doab, where they are still in great force, and they hold a little land in the Chauhan Nardak.

The Rors.

147. No satisfactory information whatever is forthcoming as to the origin of the Rors. Some of them say they were originally Rajputs settled in Sambhal Muradabad, but concealed their tribe when Paraçu Rama persecuted the Khshatriyas, and migrated to Badli, a part of one of the ancient Dehlis, and now represented by Badli ka Sarai. The motive of the story is to claim kinship with the Chauhans, and the Chauhan legend admits the descent of the Rors of Amin, &c., from Rana Har Rai. Others again seem to trace their origin from Badli near Jhajar. The Rajputs say the Rors were originally Ods, who used to dig the tanks at Thanesar. It seems not at all unlikely that this may be true in substance, for the tribe is curiously localized. At the last Census only 40,731 persons in the Panjab recorded themselves as Rors, of whom 34,094 belonged to Karnal, 4,861 to Ambala, and 1,084 to native states (probably Jindh). In Ambala they are only found in any numbers close to Thanesar, where they own a number of villages. They are also strong in the Indri Nardak and Pehowa Bangar to the S. and S.-W. of Thanesar. They hold some estates alone or jointly with the Chauhans to the North of Habri, and a few in the S. of Kaithal near the Jindh border. They now own estates along the Rohtak Canal once held by Gujars. That they originally in many cases, if not in all, held their lands as dependents of the Rajputs admits of little doubt. Socially they rank below Jats. The Rors, while as good cultivators as the Jats, and assisted by their women in the same way, are much more peaceful and less grasping in their habits; and are consequently readily admitted as cultivators where the Jats would be kept at arm's length. They are fine stalwart men. Their caste organization is stronger than that of the higher agricultural tribes, and the *panchayat* is still powerful.

The Tagas.

148. The Tagas, who must be carefully distinguished from the criminal Tagus of these parts, also of Brahminical origin, are a Brahman caste which has abandoned (*tagan karna*) the priestly profession and adopted agriculture. They have Brahmans as their family priests. They are all Gaurs; and according to tradition their origin dates from the celebrated sacrifice of snakes by Janamejaya (vulg. Jalmeja Rishi, also called Raja Agrand), which is said to have taken place at Safidon in Jindh. At that time there were no Gaurs in this country, and he summoned many from beyond the sea (*sic*).

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Half of them would take no money reward for their services; upon which he gave them 184 villages in these parts, when they decided to take no further offering in future, and became Tagas. The others took the ordinary offerings, and their descendants are the Gaur Brahmans of these parts. Both retained their division into ten clans, and are hence called *dasnam* Brahmans.

The Hindu Tagas still wear the sacred thread, but Brahmans do not intermarry with them, and will not even eat ordinary bread from their hands. Many of them are now Musalmans. It must not be supposed that a Brahman now relinquishing the priestly craft and taking to agriculture will become a Taga; the Tagas were made once for all, and the limits of the tribe cannot now be extended. They are, as already stated, the oldest inhabitants of the tract; but are now confined to the parts about Hatwala and Barana. The Barana and Sanauli Tagas are of clan Bachchas, from Kalwa Jamni in Jindh; those of Pundri and Harsinghpur of clans Parasir, from the neighbourhood of Pehowa; those about Hatwala are of the Bharadwaj, Gautam, and Saroha class, and come from Sirsa Patan, *via* the Khadir to the south of the tract. They are, as cultivators, superior to the Rajput, Gujar, and Brahman; but fall very far short of Jat and Ror. Their women are strictly secluded.

The Brahmans.

149. Brahmans hold only a small area in the tract, there being but few villages in which they have acquired any considerable share. But they own small plots in very many villages, being, for the most part, land given to family priests (*parohits*) by their clients (*jajmans*) as religious offerings (*pun*). They are vile cultivators, being lazy to a degree; and they carry the grasping and overbearing habits of their caste into their relation as land owners, so that, wherever Brahmans hold land, dispute may be expected. The local proverb goes *Brahman se bura, Bagar se kal*, "As famine from the desert, so comes evil from a Brahman." Most of the Brahmans of the tract are Gaur. There are also a few Sarsut Brahmans who are said to be far less grasping and quarrelsome than the Gaurs, and are certainly less strict in their caste habits, so that Gaurs will not eat ordinary bread from their hands. The most common *gots* are the Bharadwaj, Bashista, Gautam, Bachchas, Parasir, and Sandlas. The Brahmans have, in almost all cases, followed their clients from their original abodes to the village in which they are now settled.

The Gujrati and Dakaut Brahmans.

150. There are two tribes of Brahmans which, though they own no land, are of special interest; they are the Gujrati and the Dakaut.

Offerings to Brahmans are divided into *bar* or *graha* for the days of the week, and the two *grahin* for Rahu and Ket, the two demons who cause eclipses by attacking the sun and moon. These two are parts of a demon (*rakshasa*), who, when

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sitting at dinner with the gods and demons drank of the nectar of the gods instead of the wine of the demons. The sun and moon told of him, and Bhagwan cut him into two parts, of which Rahu, including the stomach and therefore the nectar, is the more worthy. When any body wishes to offer to Brahmans from illness or other cause, he consults a Brahman, who casts his horoscope and directs which offering of the seven *grahas* should be made. The *grahins* are more commonly offered during an eclipse, that to Rahu being given at the beginning, and that to Ket at the end of the transit. The Gaur Brahmans will not take any black offerings, such as a buffalo or goat, iron, sesame (*til*) or *urd*, black blankets or clothes, salt, &c., nor oil, second hand clothes, green clothes; nor *satnaja*, which is seven grains mixed, with a piece of iron in them; these belonging to the *grahe* whose offerings are forbidden to them. An exception, however, is made in favour of a black cow.

The *Gujrati* or *Bias* Brahmans, who came from Gujrat in Sindh, are in some respects the highest class of all Brahmans; they are always fed first; and they bless a Gaur when they meet him, while they will not eat ordinary bread from his hands. They are fed on the 12th day after death, and the Gaurs will not eat on the 13th day, if this has not been done. But they take inauspicious offerings. To them appertain especially the Rahu offerings made at an eclipse. They will not take oil sesame, goats, or green or dirty clothes; but will take old clothes if washed, buffaloes, and *satnaja*. They also take a special offering to Rahu made by a sick person, who puts gold in *ghi*, looks at his face in it, and gives it to a Gujrati, or who weighs himself against *satnaja* and makes an offering of the grain. A buffalo which has been possessed by a devil to that degree that he has got on to the top of a house (often no difficult feat in a village), or a foal dropped in the month of Sawan or buffalo calf in Magh are given to the Gujrati as being unlucky. No Gaur would take them. Every harvest the Gujrati takes a small allowance (*seorhi*) of grain from the threshing floor, just as does the Gaur.

The *Dakauts* came from Agroha in the Dakhan. Raja Jasrat (Daçaratha), father of Ramchandra, had excited the anger of Saturday by worshipping all the other *grahas* but him. Saturday accordingly rained fire on Jasrat's city of Ajudhia. Jasrat wished to propitiate him, but the Brahmans feared to take the offering for dread of the consequences; so Jasrat made from the dirt of his body one Daka Rishi who took the offerings, and was the ancestor of the Dakauts by a Sudra woman. The other Brahmans, however, disowned him; so Jasrat consoled him by promising that all Brahmans should in future consult his children. The promise has been fulfilled. The Dakauts are pre-eminent as astrologers and soothsayers, and are consulted by every class on all subjects but the dates of weddings and the

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names of children, on which the Gaurs advise. They are the scape-goats of the Hindu religion; and their fate is to receive all the unlucky offerings which no other Brahman will take, such as black things and dirty clothes. Especially they take the offerings of Wednesday, Saturday, and Ket. They are so unlucky that no Brahman will accept their offerings, and if they wish to make them, they have to give them to their own sister's sons. No Hindu of any caste will eat any sort of food at their hands, and at weddings they sit with the lower castes; though of course they only eat food cooked by a Brahman. In old days they possessed the power of prophecy up to 10-30 A. M.; but this has now failed them. They and the Gujratis are always at enmity, because, as they take many of the same offerings, their interests clash.

The Saiyids.

151. The principal Saiyids are those of Barsat, of the Zedi branch, and descended from Abul Farah of Wasat in Arabia, who accompanied Mahmud Ghaznavi, and, settling first at Chhat Banur in Patiala and then at Sambhalheri in Muzaffarnagar, was the ancestor of the Chatrauli Saiyids. The Saiyids of Saiyidpur and Jal Pahar are Huseni Saiyids, the former from Mashhad the latter from Khojand, near Khorasan. The Faridpur Saiyids are Musavi from Kazwin in Persia. All belong to the Bara Saadat, who played such an important part in the latter days of the Mughal Empire. There is also a large community of Saiyids at Baras, descended from Shah Abdal from Chist, who assisted Sikandar Lodi at the siege of Narwar and obtained a grant of part of the village. They have an old MS. family history of some interest. Other well known but decayed communities of Saiyids own Gula and part of Pundri in Kaithal. Timur found the Saiyids in Gula when he crossed the Ghagar in 1396 A.D. Mr. Ibbetson writes:—

"The Saiyid is emphatically the worst cultivator I know. Lazy, thriftless, and intensely ignorant and conceited, he will not dig till driven to it by the fear of starvation, and thinks that his holy descent should save his brow from the need of sweating. At the best he has no cattle, he has no capital, and he grinds down his tenants to the utmost. At the worst he is equally poor, dirty, and holy. He is the worst revenue payer in the district; for light assessment means to him only greater sloth. I have known a Saiyid give one-third of the yield of the grain-field to a man for watching it while it ripened; and if his tenants' rent is Rs. 10, he is always glad to accept Rs. 5 at the beginning of the season in full payment.

Miscellaneous and menial tribes.

152. *Gadis.*—The Gadis are Musalmans. They are mostly of the Sarohe clan, and come from the Bagar or from the Ambala district. They own villages in the Indri Khadir.

Kambohs, Rains, and Malis.—The Kambohs are excellent cultivators. Rains and Malis, who practise market gardening, are chiefly settled in the towns, where they cultivate as tenants. But the Rains also own villages in the Powadh tract to the north of the Ghagar. They are Musalmans.

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Bairagis.—The Nimawat Bairagis of Goli, Waisri, and Harsinghpur, the Rama Nandi Bairagis of Sita Mai and Bhandari, and the Radha Balabhi Bairagis of Barana and Matnauli own a good deal of land. Besides the monks (*sadhu*) of the monasteries *(asthal)* whose property descends to their disciples (*chela*), who are called their *nadi* children, many of the Bairagis have married and become *Ghristi* and have descendants by procreation, or *bindi* children, thus forming a new caste. This latter class is drawn very largely from Jats. The monastic communities are powerful, are exceedingly well conducted, often very wealthy, and exercise a great deal of hospitality.

Shekhs.—Of Shekhs proper (Arabs), the only representatives in the tract are the Kureshis, Ansaris, and Muhajarin (Makhdumzada) of Panipat (see Chapter VI). But every low caste convert to Islam calls himself a Shekh, and such Shekhs are known in the district as *sidki.* The Ranghars of the Powadh who claims to be Rajputs, but practise karewa, are often called Shekhs. But the most remarkable Shekhs are a menial caste of that name, which is represented in very many villages by one or two small families, and from which the village watchmen have been almost exclusively drawn from time immemorial. The people say that it was the policy of the old Emperors to have some Muhammadans in every village, and that they therefore appointed and settled these people; and the story is not improbable.

Jogis.—There is a caste called Jogi, generally Hindu, which is one of the lowest of all castes, and receives the offerings made to the impure gods. They are musicians, and practise witchcraft and divination. They must be carefully distinguished from the *Kanphata Jogis*, or monks of Shiv, who are a sect of religious devotees and not a caste at all, and in fact do not marry.

Menial Castes.—The menial castes (*kamins*) only hold land in the rarest possible instances. Their place in the village community is fully described in the next section. They are principally distinguished by their elaborate caste organization, which is so complete that their disputes seldom come into our Courts.

SECTION E.—VILLAGE COMMUNITIES AND TENURES.

Condition of the proprietory body.

153. The proprietory body proper, which forms the nucleus round which the subsidiary parts of the community are grouped, includes all those who have rights of ownership in the common land of the village. It is seldom *wholly* confined to one single family, strangers having almost always obtained admission in some one or other of the ways indicated in para. 136; and very often the community will consist of two distinct tribes or clans of the same tribe, holding more or less equal shares in the village. The community, however constituted,

Chapter III, D.

Tribes and Castes.

The Gujrati and Dakaut Brahmans.

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Village Communities and Tenures.

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SECTION E.—VILLAGE COMMUNITIES AND TENURES.

Condition of the proprietory body.

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Village Communities and Tenures.

Condition of the proprietory body.

is almost always sub-divided into wards or *pannas*, each *panna* embracing a branch of the family descended from some common ancestor, and perhaps strangers settled by that branch, if not sufficiently numerous to constitute a separate *panna* of themselves. The word *panna* is also the local term for a lot (*panna marna*, to cast lots), and is almost the only relic still remaining of the old custom of periodical re-distribution of land which seems to have once been so common in Aryan communities.[1] These *pannas* are very commonly again sub-divided into *thulas*,[2] which are also based upon community of descent. The village is represented by a certain number of headmen, or *lambardars*, generally one or more for each *panna* or *thula*, according to size; and these again are assisted by *thuladars*, a kind of assistant headmen who are not officially recognized. The headman has a considerable discretion in the choice of his *thuladars*, but the latter must be so chosen as fairly to represent the various genealogical branches of the community. The headmen and *thuladars*, together with such men as have gained influence by age or ability, constitute the *panch* or village council—an institution which, though no longer recognized by us, still exercises considerable authority, is generally appealed to in the first instance, and successfully settles a great number of disputes.

Village officers.

154. The following table shows the number of *zaildars*, *inamdars*, chief headmen, and headmen in the several *tahsils* of the district :—

TAHSIL.	Zaildars.	Inamdars.	Chief headmen.	Village headmen.
Panipat	7	...	102	718
Karnal	16	7	41	955
Kaithal	15	11	...	975
Total ...	38	18	143	2,648

The *zails* may be classified as follows according to prevailing tribes :—

TAHSIL.	Chauhan Rajput.	Mandhar Rajput.	Tunwar Rajput.	Jat.	Gujar.	Ror.	Kamboh.	Gadi.	Miscellaneous.
Panipat ...	...	...	...	4	2	1	...	...	...
Karnal ...	4	3	...	5	...	2	1	1	...
Kaithal ...	1	3	1	7	1	1	...	...	1
Total ...	5	6	1	16	3	4	1	1	1

(1) The holdings in the sandy parts of some villages are still periodically re-distributed; but this is a good deal because the wind effaces the boundaries and makes them difficult to trace. The uncertainty of the yield, moreover, is one of the causes of the re-distribution, according to the people themselves.

(2) In Indri and Kaithal the division is into *pattis* and *thulas*.

Village officers.

Each *zaildar* is remunerated by an allowance of 1 per cent. deducted from the land revenue of his circle. In *tahsil* Panipat and *pargana* Karnal chief headmen were appointed at Mr. Ibbetson's Settlement in large villages, where the headmen are numerous; they are elected by the votes of the proprietory body subject to the sanction of the Deputy Commissioner. They represent the body of headmen, and receive Government orders in the first instance, though in respect of the collection of revenue they possess no special authority or responsibility. In *pargana* Indri and *tahsil* Kaithal the *ala lambardari* system has not been introduced, but cash *inams* have been given to a few influential headmen, the sum allowed for this purpose being ½ per cent. of the land revenue. Most of these *inams* are of the value of Rs. 50 per annum. After annexation small cash *inams* were given for life to certain headmen in Kaithal. All of these have lapsed or been absorbed in the new *zaildari* and *sufedposhi inams*. The head-quarters of the *zails*, together with the prevailing tribes in each, are shown below :—

Tahsil.	Zail.	No. of villages.	Annual land revenue.	Prevailing tribe.
Panipat ...	Panipat ...	37	65,967	Jats.
	Khojgipur ...	41	47,720	Gujars.
	Jaurasi ...	31	71,672	Jats.
	Naultha ...	23	53,080	Do.
	Korana ...	18	32,314	Rors.
	Bhalsi ...	16	26,099	Jats.
	Kabri ...	17	13,432	Gujars.
Tahsil Karnal ...	Jundla ...	29	14,730	Chauhan Rajputs.
	Karnal ...	29	24,740	Jats.
	Gharaunda ...	35	31,231	Mandhar Rajputs.
	Barsat ...	19	22,048	Jats.
	Dachaur ...	22	21,912	Mandhar Rajputs.
	Baras ...	37	13,235	Chauhan Rajputs.
	Nagla Megha	24	13,913	Mandher Rajputs.
	Baraganw ...	22	20,330	Chauhan Rajputs.
	Rambha ...	36	23,460	Do.
	Pathera ...	24	15,780	Jats.
	Dhananra ...	17	14,273	Do.
	Shergarh Tapu	20	15,392	Do.
	Khera ...	14	13,275	Kambohs.
	Jormazra ...	14	6,149	Gadis.
	Barsalu ...	15	6,728	Rors.
	Amin ...	39	15,448	Do.

Village officers.

TAHSIL.	ZAIL.	No. of villages.	Annual land revenue.	Prevailing tribe.
Kaithal ...	Kaithal ...	38	20,457	Jats.
	Keorak ...	24	13,066	Gujars.
	Habri ...	20	12,004	Chauhan Rajputs.
	Gumthala ...	17	10,170	Tunwar Rajputs.
	Asandh ...	27	12,079	Mandhar Rajputs.
	Rajaundh ...	19	9,829	Do.
	Siwan ...	39	26,549	Do.
	Niguran ...	15	9,465	Jats.
	Pai ...	21	17,769	Do.
	Chhatar ...	22	20,481	Do.
	Bhagal ...	33	21,230	Do.
	Bakhli ...	34	11,238	Do.
	Sarsa ...	24	9,031	Do.
	Pabnawa ...	20	10,669	Rors.
	Gula ...	41	17,950	Miscellaneous.

Mauza Kunjpura in Indri and 34 estates in Kaithal belonging to the Arnauli and Siddhuwal *jagirs* are excluded from the *zaildari* system.

Village headmen.

155. It appears from the old records of Panipat and *pargana* Karnal that in former days there was one headman for each *panna*. They had great authority, the distribution of the revenue being wholly in the hands of the *thapa* and village councils, of which they formed the heads. Their office was hereditary; though fitness was an essential, and the next heir would be passed over, if incapable, in favour of another member of the same family. When we acquired the tract the same arrangement was perforce continued for many years, as no record of individual rights or liabilities existed. But unfortunately the hereditary nature of the office, and the authority which should attach to it, were lost sight of. All the leading men of the village were admitted to sign the engagement for the revenue, and all that signed it we called headmen. The allowance *(pachotra)*, which is given to these men, took the form of a deduction from the last instalment of revenue if paid punctually, and was divided by all the engagers; in fact, it is even said that "all the owners shared it proportionally, and that it practically took the form of a mere abatement of revenue in which the whole community had a common interest."

In 1830 a field-to-field record had been introduced, and an attempt was made to limit the number of headmen, it being ruled that the people were to elect fresh headmen every year, who alone were to enjoy the allowance. The Collector of the time regretted the change. He wrote in 1831:—

"The great objection to the new arrangement is that it is calculated to destroy the strong and honourable feeling of mutual good-will and attachment which formerly characterized the intercourse *of the headmen or sharers, with the other classes of the community.*

Village headmen.

The support and assistance which the elders had it in their power to afford to the lesser cultivators ensured their respect and obedience, and consequently the peace and good order of the society. The power they possessed was considerable; and, so far as the interests of their own village were concerned, was scarcely ever abused."

The words in italics show the light in which these innumerable headmen were then looked upon. The other members of the proprietory body were called *rayats* or cultivators; and we find the Supreme Government asking for an explanation of the fact that some of the reports submitted seemed to imply that they too possessed a proprietory interest in the land.

The plan of having a new election of headmen does not seem to have been, in its integrity, carried into effect; but up to the settlement of 1842 the number of headmen was still inordinately excessive. We find a village paying Rs. 14,000 with 76 headmen, another paying Rs. 3,500 with 21, a third paying Rs. 5,500 with 23, and so on. In 1839 the Collector wrote that the matter had been "a continual fester for years." At the settlement of 1842 the Settlement Officer was directed to reduce the numbers largely, taking as a general standard one headman for every Rs. 1,000 of revenue. He found that among the crowd of so called headmen there were generally some who had enjoyed the office, either personally or through their ancestors, for a considerable period. These he selected; and, as far as possible, gave one headman at least to each sub-division of a village.

In Kaithal the number of headmen recognized in the first Settlements was excessive. In the Settlement of 1856 the evil was met in many villages by the somewhat clumsy device of confirming existing holders in their appointments for life, and providing that the first one or two vacancies should not be filled up. Thus, if the most influential headman in an estate died first, his heir had no claim. The rule was carried out, but the other headmen often continued to pay a share of the *pachotra* to the heir, who in ordinary course would have succeeded, for long after his position had ceased to be officially recognized. Many claims for the revival of appointments which had lapsed were presented during the recent settlement, but they were rejected.

At present the distribution is very unequal; villages with eight or ten headmen are not uncommon; and as each man often pays in only two to three hundred rupees of revenue, the allowance of 5 per cent. is, in such cases, quite insufficient to give any standing to the office. As a rule either the headmen or the patwari, or both together, have the accounts of the community very much in their own hands. The headmen have, therefore, great power in many matters, but our system has to a large extent deprived them of that authority and responsibility which is the best security for a proper exercise of such power. That serious cases of embezzlement are so rare is a proof of the good faith which governs the mass of the people in their dealings

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Village Communities and Tenures.

Village headmen.

with one another. The village headmen enjoy certain privileges by virtue of their office. Thus they and their heirs-apparent are exempt from the duties of village watch and ward (see para. 191). A *chamar* is often attached to each headman as a personal attendant without payment further than his mid-day meal; and the body of *chamars* generally have to give a day's work in the fields of each, though, as they expect to be feasted on the occasion, the service is more of an honour than a profit to the recipient. The right of succession runs in the eldest male line; and the right of representation is universally recognized, the deceased elder son's son taking precedence of the living younger son, though the former may be a minor, and a substitute may have to be appointed to do his work.

Village and proprietory tenures.

156. Table No. XV shows the number of villages held in each of the main forms of tenure, with the number of proprietors or shareholders and the gross area included under each class, as returned in Table No. XI of the annual Revenue Report for 1888-89. But the accuracy of some of the figures is doubtful. It is in many cases impossible to class a village satisfactorily under any one of the ordinarily recognized tenures, as will appear from the following description by Mr. Ibbetson of the tenures of that portion of the district settled by him:—

"The villages of the tract (*tahsil* Panipat and *pargana* Karnal) have, for the purposes of Settlement, been classified as follows:—64 held wholly in common by the body of owners (*zamindari*); 22 divided among the several branches of the community according to ancestral shares (*pattidari*); and 250 held in severalty by the individual households, the holding of each being quite independent of any fixed scale (*bhaiachara*). But this classification is practically meaningless. Of the 64 *zamindari* villages, 44 are held by the Skinners, the Mandals, or purchasers from them; 9 are small uninhabited plots of land belonging to larger villages, but having separate boundaries of their own; and 8 are on the river edge, where the uncertainty of the river action renders the joint stock tenure the only one which can ensure individual proprietors against serious loss or utter ruin. Of the 22 *pattidari* villages, 7 are small uninhabited plots of land as above, and 4 are subject to river action; while in most of the remainder the property of individual households is regulated by possession and not by shares, though the several main branches of the community have divided the village by shares. On the other hand, in the 250 *bhaiachara* villages, though the common land has not yet been divided according to shares, yet the interest of the several branches of the community in that land is strictly regulated by ancestral shares in a very large number, if not in a majority, of instances. The fact is that a village may have four or five *pannas* with two or three *thulas* in each; there may be common land of the village, of each *panna*, of each *thula*, and of two or more *thulas* and *pannas* jointly, the scale of separate interests in each varying in its nature from one to another, and each single family holding by possession and not according to shares: so that it is, as a rule, impossible to describe the tenure of a village in a word, or to classify it satisfactorily under the recognised headings."

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Village Communities and Tenures.

Village and proprietory tenures.

At the recent settlement of Indri and Kaithal the estates were classed as follows :—

Tenure.	Indri.	Kaithal.
Zamindari	36	53
Pattidari	62	55
Bhaiachara or mixed pattidari and bhaiachara ...	146	319
Total ...	244	428

Leased estates in Indri and Kaithal.

157. Until the recent settlement there were 58 leased villages, 6 in Indri and 52 in Kaithal. Two of the Indri leases were made by Mr. Wynyard under the rules for the lease of waste lands contained in Notification No. 5705 of the Government of the North-Western Provinces, dated 28th November 1848. Most of the other leases were arranged by Captain Larkins, when he settled the Thanesar district in 1855 and 1856.

Origin of leases.

158. When Kaithal lapsed in 1843 we took over a country occupied by settled communities, some of which had been strong enough to offer a very vigorous resistance to the oppressions of the Sikhs. But cultivation had declined in the evil days that preceded our rule. It was found that there were some patches of waste land kept as *birs* or grass preserves by the late Sikh ruler, and that there were also a number of deserted sites, which tradition said had once been occupied by village communities. The owners had been driven from their homes by one or other of the numerous famines which desolated Kaithal and the neighbouring States in the last quarter of the 18th and the first quarter of the 19th century, or they had fled in the times of confusion which followed upon the decay of the Mughal Empire. When order was restored there was no lack of claimants to the ownership of the deserted sites. In many cases the *zamindars* of the large villages in the neighbourhood asserted that they were the *biswadars*. They doubtless declared with more or less truth that the smaller estates had been founded by colonies from the older villages, and that the colonists, when unable to protect themselves from oppression, had returned to the strong parent community. Later on Captain Larkins formed new estates by demarcating part of the excessive waste which he found to exist in many villages. The Kaithal leases therefore were often encumbered by previous rights, which were acknowledged by the payment of a *malikana* or ownership fee to the *zamindars* to

Chapter III, E.

Village Communities and Tenures.

Leases of waste land made at the first summary settlement in 1843.

whom the *biswadari* was admitted to have originally belonged.

159. The cessation of internal disorder and border warfare which followed on the introduction of our rule gave a sudden impulse to agriculture, many *zamindars* came back to their homes, and in 1843 Major Lawrence was able to locate 39 *thehs* or abandoned villages, 89 were engaged for by the *zamindars* within whose original boundaries the deserted sites were situated, and 34 remained to be disposed of after time had been given to the old cultivators to return (Lawrence's Settlement Report, page 40). No details can be given as to the arrangements made by Major Lawrence. But Captain Abbott describes the general results of his action as follows:—" The terms of the leases were so light, and the parties "being generally bound in no penalty, very few (of the estates) "were peopled, greater profits were to be derived from the sale of "grass, wood, and grazing privileges." As regards uncultivated lands generally, Major Lawrence explained to the *zamindars* that " the waste lands were their own to do what they pleased "with for the next three years, (the period of his summary settle-"ment), adding that at the expiration of that time they would only "be entitled to areas of waste equalling double the extent of their "cultivation."

Leases made at Captain Abbott's Settlement in 1847.

160. At the regular settlement made in 1847 by Captain Abbott 64 sites were leased out. In some cases two neighbouring sites were leased to the same persons, so that there were not really 64 estates. Fifty-two of the leased sites were in the dry uplands where well irrigation is unprofitable. Captain Abbott stipulated for the breaking up of a certain proportion of the waste, the sinking of a well or the digging of a tank, the locating of a certain number of ploughs, and the building of a certain number of houses. The leases were often made to the *zamindars* of large neighbouring villages with which the sites had been measured at the summary settlement. The lessees were acknowledged as *biswadars*, but it was provided that if they failed to fulfil the conditions of the lease they should lose the *biswadari*, and also pay a penalty of three times the *jama* assessed. Captain Abbott's view of the rights of Government and of the effect of the action he took was expressed as follows:—" I have endeavoured as much as possible to re-"store the sites to former occupants, but very few such existed. "The lands were waste, overrun with jungle, the peculiar property "of Government, to dispose of to the best advantage. Proclama-"tions for their disposal were issued, and, after the disposal of any "claims that might be made, the more eligible offers were "accepted. Thus the *biswadari* of these sites has been disposed "of under certain conditions, failing fulfilment of which it will, "at the end of three years, be available to the Government to "dispose of in any other way." He expected that in consequence of the arrangements he had made 50 new estates would be

Chapter III, E.

Village Communities and Tenures.

Leases made at Captain Abbott's settlement in 1847.

founded within three years, and that at the termination of the settlement these would be strong villages. These sanguine expectations were, however, disappointed. The main defect in Captain Abbott's scheme was the extremely short time given for the fulfilment of the terms. The condition of sinking a well was also a very unsuitable one to impose on the founder of a new village in this upland tract, where water is often above 100 feet from the surface and wells are not used for irrigation. They are extremely costly, and take 10 or 15 years to sink. The work is begun in a good year, abandoned if bad seasons follow, and taken in hand again when times improve. The large proportion of new cultivation demanded by Captain Abbott could scarcely be effected in three years, and there was every temptation to rely on the profits of cattle rearing and proceeds of grazing dues, from which a fair income was derivable.

Leases made at Captain Larkins' settlement in 1855.

161. It is not, therefore, strange that in the great majority of cases Captain Larkins, who re-settled the district in 1855, found that the conditions of the leases were unfulfilled. It was at first proposed to sell the leased lands outright; but the result of the single sale that was carried out was not encouraging, and Mr. Edmonstone, Commissioner of the Cis-Satlej States, proposed to the Board of Administration that the lands should be again leased. The Board, while expressing much scepticism as to the possibility of converting a tract intended by nature for cattle rearing into a well-cultivated country unless a canal could be brought through it, acquiesced generally in Mr. Edmonstone's proposals. (Secretary to the Board of Administration to the Commissioner, Cis-Satlej States, No. 1629, dated 25th May 1852). In only a few cases were Captain Abbott's lessees held to have earned a proprietory title; more than one-third of the leases were cancelled and the lands resettled with new applicants. But in many cases, where some thing had been done to improve the land, Captain Larkins revised the original conditions and granted fresh leases to the old farmers. The chief alteration was the striking out in Bangar leases of the condition that the lessee should sink a well. The lessees were given five years within which to fulfil the terms of the new leases. Many of Captain Abbott's leases had been made to the *zamindars* of the villages in which the deserted sites had been included in the first summary settlement. In these cases Captain Larkins held that defaulting lessees "had forfeited "all claim beyond the *biswadari* allowance of 5 per cent. on the "Government demand, where they have been recorded as pro-"prietors." Besides dealing with the leases made by Captain Abbott, Captain Larkins himself separated off from the areas of villages having excessive waste 21 new estates. A *malikana* of 5 per cent. on the revenue was declared to be payable to the original proprietors. His action in demarcating these estates was based on Regulation VII of 1822, and it is clear that his authority was derived from the 8th Section, and the *malikana* was fixed, to quote the words of that section, " in lieu and bar

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"of all claims to or in waste lands so granted." He intended that a lessee, who fulfilled the conditions of the lease, should be regarded, or, if already recorded as owner, confirmed as proprietor of the village which he founded. Even if the lessee was also the recorded proprietor, he was liable, if he failed to carry out the conditions on which the estate was leased to him to forfeit all title in it beyond the right to receive an allowance of 5 per cent. on the revenue. Excess waste was not always formed into separate estates. In the cases of some villages with enormous areas of *jangal* Captain Larkins contented himself with taking written engagements from the proprietors to the effect that, "it would be in the power of the District authorities (under Regulation VII of 1822) at any time, during the terms of the present settlement in estates where the waste exceeds twice the area under the cultivation, to mark it off separately for the formation of a new mahal in the event of any parties coming forward to take up the lease."

Conditions of leases granted by Captain Larkins.

162. Captain Larkins' policy in the high upland tract was only to require the cultivation of a certain proportion, usually one-third or one-fourth, of the assessable area, and the location of a certain number of ploughs. He considered it absurd to bind a lessee to sink a well, seeing that the *zamindars* in many old villages depended on their tanks for drinking water, and, even where wells existed, preferred to use tanks because of the trouble involved in drawing water from a depth of above 100 feet. He knew besides that, if cultivators settled at all, they would assuredly either sink a well or dig a tank. The stipulation as to houses appeared to him superfluous, as the location of ploughs implied the presence of cultivators. He fixed progressive assessments, the initial *jama* being two-thirds of the average annual income found to be derived from the sale of grass and of grazing dues. The final demand was not allowed to exceed the amount brought out by the application of the *pargana* revenue rates to the area required in the lease to be cultivated. In new leases ten years were allowed for the fulfilment of the terms, but it was stipulated that one-half of them should be carried out within five years.

Enquiry as to fulfilment of conditions of leases made in 1863.

In 1863, soon after the abolition of the Thanesar District and the transfer of Kaithal to Karnal, Mithan Lal, Extra Assistant Commissioner of Kaithal, carried out an enquiry as to the extent to which the lessees had fulfilled the conditions of their leases. He appears to have found that in scarcely a single case had the lessee succeeded in carrying out within the first five years all that he was required to do within that period. The Deputy Commissioner of Karnal cancelled many of the leases, but the Commissioner subsequently held that the annulment of a lease merely because the farmer had failed to bring the required extent of land under the plough would not be justifiable,

as he considered that the terms imposed were impossible of fulfilment. The lessees were to continue in possession and their claims could be considered at settlement.

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Treatment of leased estates at the recent settlement.

163. A full enquiry into all these leases was made during the recent settlement. Reports were furnished by Mr. Douie, and orders were passed, in the letters noted in the margin. The Settlement Officer had to deal with an area of 73,930 acres, of which 24,669 were under cultivation. He found that there were six villages classed as leased estates, which did not really answer to that description. The so-called lessees were owners of the land, but had in most cases been bound over to cultivate a certain portion of their waste within a limited period. If they failed to do so Government had the power to cancel their rights of ownership and form new estates out of the excess waste. Adding to the area of these estates a few plots in ordinary leased villages which were recorded as the property of private persons at the last settlement, he held that 16,364 acres were already owned by *zamindars*, and he proposed that Government should admit that their proprietory rights were subject to no special conditions. He considered that in such cases tenants who made claims to occupancy rights should be left to establish them by regular suits. As regards the remaining estates enquiry showed that in hardly a single instance had the conditions been fulfilled within the period fixed in the original lease. But Mr. Douie proposed that Government should deal liberally with the lessees and look rather to the present state of villages than to the result of the enquiry made by Mithan Lal in 1863. Where the terms were shown now to have been fulfilled, and even, in some cases, where they had not been literally fulfilled, but substantial progress had been made, he advised Government to admit the lessees as owners subject to certain conditions stated below. Where little or nothing had been done he proposed to cancel the lease, and to resume the estate. He urged that advantage should be taken of the fact that the conditions were not fulfilled in time—

Settlement Officer's No. 633, dated 10th December 1888, reporting on 56 estates.

Settlement Officer's No. 414, dated 25th April 1889, reporting on *Theh* Malbora.

Settlement Officer's No. 397, dated 22nd April 1889, reporting on *Bir* Rai Tikana.

Panjab Government's No. 524, dated 23rd August 1890, passing orders on 57 estates.

Panjab Government's No. 154, dated 23rd August 1890, passing orders on *Bir* Rai Tikana.

(*a*) to protect the rights of old cultivators;

(*b*) to secure the reservation of a considerable area as village pastures;

(*c*) to put certain restraints on the power of alienation.

A register containing detailed proposals as to the grant of ownership and occupancy right, &c., in each estate was submitted, and is now in the district office. The gist of the proposals was that Government should resume 10,310 acres, grant ownership in 45,620 acres, and give a fresh lease of 1,636 acres. In many cases the recorded lessees were merely representa-

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tives of a larger body of their caste fellows, or had, after obtaining the leases, called in cultivators under engagements, express or implied, to give them a share in the ownership, if ultimately conferred. Hence many persons, other than the recorded lessees, were held to be owners. This was often, but not always, done by consent. Many old cultivators, though not entitled to a share in the proprietorship, appeared to deserve protection from ejectment and future enhancement of rent. They had in most cases paid exactly like owners, and shared all their other burdens and privileges. In such cases Mr. Douie proposed to fix their rents in perpetuity at revenue, cesses, and malba. Where rent was paid by division of crop the old rates were as a rule continued. The Settlement Officer proposed to reserve 7,750 acres of the land made over in ownership to the lessees as common village pastures, providing that any one encroaching on such land should pay a fine of Rs. 100 to Government and be ejected. This plan met generally with the approval of the people, and did by order what they would do themselves if they had not lost the power of combination. The management of these reserves was to be left entirely in the hands of the owners.

The restrictions on alienations which were suggested need not be detailed, as Government declined to sanction them. In other respects the proposals were approved of, though final orders on one or two points have yet to be issued. Where *malikana* has hitherto been given by the lessees to the owners of the estates from which the leased areas were originally separated, it will continue to be paid, but the recipients are not recognised in the revenue records as *ala maliks*, and they will receive their *malikana*, not direct from the new owners, but through the *tahsil*.

Estates resumed by Government.

164. The estates which Government has now taken over are Badalwa, Dhindhari, Ukasbaithi, and one-third of Motia in Indri, and Theh Mujibulla, Koli Khera, one-fourth of Khanpur, Rawanhera, Theh Bahiri, Basi, Kabulpur, and Khanda Kheri in Kaithal. The last five will probably become irrigable from the Sirsa Canal and Rajbaha No. 1; and four of them should become very valuable. The Indri estates form two solid blocks of grazing land. Khanpur is close to the town of Kaithal and contains good pasture. Koli Khera is of little use for grazing, but contains fine timber (*kikar*), which would be valuable if there were any market for it. The land is unsuited for cultivation. Theh Mujibulla is in the Sarusti and liable to be flooded. Much of the land is bad, and the grasses are coarse. In addition to the above Government owns in Kaithal 451 acres in Theh Ruherian, which is kept as a grazing *rakh*.

Ideas regarding property modified under British rule.

165. A discussion of the changes that have occurred in the ideas regarding property in land and the rights of cultivators under our rule will be found in paragraphs 240—41 of Mr. Ibbetson's Settlement Report. He concludes by saying:—

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Ideas regarding property modified under British rule.

"The present state of affairs, then, is this. The fractional shares of the whole village and of the chief sub-divisions of the village, to which each main branch of the community is entitled, are often still recorded in the papers, and very generally measure their interest in the common land. But the internal distribution of property in the common land between the constituent households of each main branch is always regulated by the areas held in severalty. Even when the holdings in severalty regulate the primary division of the common land also, which is most often the case in villages held by two or more different tribes, who can, of course, have no ancestral scale of rights, the recognised shares which used to measure the rights of each are very often recorded in the papers of last Settlement, though it is at the same time recorded that they are no longer acted on. And instances are by no means uncommon where the wards of a village, in the face of a distinct record that their rights are proportional to their holdings in severalty, have yet, at division, reverted by consent to the old shares, although the revision involved a loss to one or other of them."

The family. Rules governing the devolution of property.

166. The land owned in severalty by individual families is not only inherited, but is also invariably divided on the occasion of separation of property in strict accordance with ancestral shares. The members of the family often divide the land among themselves for convenience of cultivation more in accordance with the appliances at the disposal of each than with the proprietory shares, just as the common land is allotted to the various families on a similar scale. But this division is not a division of property, and the right of the members to a re-distribution according to shares, with due regard to the preferential right of each to the land he has cultivated, so long as it does not exceed his share, is always recognized by the people, though sometimes (not often) contested by the individuals concerned.

The rules of inheritance are as follows:—No practical distinction whatever is made between divided and undivided families; in fact, the terms are hardly ever used.[1] First the sons and sons' sons by stirpes how low soever succeed, sons representing their dead fathers. In the absence of them, the widow takes an interest strictly limited to a life tenancy. If there is no widow, or after her death, the brothers and brothers' sons how low soever inherit by stirpes with representation. In their absence the mother takes a life interest.[2] After these the inheritance goes to the nearest branch in the male line, the division

(1) Mr. Ibbetson, from whom the abstract in this and the next four paragraphs is taken, writes:—"I need hardly say that all my remarks refer solely to the land-owning castes, and not to Banias and the like. They also do not apply to the original Musalmans, who usually follow the Muhammadan Law. Moreover, in these matters I only give the general customs. Particular exceptions, though far less numerous than might be expected, will be found recorded in the record of common customs." I have added some notes. See also the volume relating to *pargana* Indri and *tahsil* Kaithal in the series devoted to the Customary Law of the Panjab.—J. M. D.

(2) There is some disposition among certain tribes to say that the mother should succeed along with the son's widow or even along with the widow. It is founded on the feeling that the older woman would be less likely to mismanage, and finally attempt to part with, the land.—J.M.D.

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at each stage being by stirpes. Daughters, if unmarried, have a claim to maintenance only.[1] If property is separately acquired by a son in a divided family during his father's life, the father inherits before the brother; but separation of interest before the father's death is not allowed, and no separate property can be acquired by the individuals of an undivided family. The father may divide the land for convenience of cultivation; but on his death, or the birth of another son, it will be open to redistribution.

In attesting the record of common customs the whole countryside has declared that, where there are three sons by one wife and one by another, all four share equally (*pagvand*). But there have undoubtedly occurred instances in certain families, especially among the Rajputs of the Nardak, where the division has been by wives (*chundavand*). Where *chundavand* is the rule of division, the full brothers and their representatives succeed to the exclusion of the half-blood; otherwise there is no distinction between the two.[2] All sons, whether by original marriage or re-marriage (*karewa*), are on an equal footing; no priority is attachable to the sons of any particular wife. But if a Rajput Musalman should marry a woman of another caste, as they sometimes do, especially in the cities, the sons do not inherit at all, the property going strictly in the tribe.

A son born less than seven months after the marriage is consummated, even though begotten by the husband, and one born more than ten months after death or departure of the husband, is illegitimate. An illegitimate son cannot be legitimised, nor can he inherit.[3] A son by a former husband brought with her by a woman on her re-marriage, who is called *gelar*[4] (*gel* together with) if born, and *karewa* if unborn at the time of the re-marriage, inherits as the son of his begetter. A member of the family who becomes a monk (*sadhu*) loses his inheritance; but does not do so merely by becoming a beggar (*fakir*).[5] But the disciples of monks inherit from them as their sons. The life-interest of widows subsists so long as one is alive, and is shared by all equally. But a Musalman widow of another caste has no interest; and a widow who re-marries loses all rights even if she marries the husband's brother. Pregnancy also destroys their rights; but not mere reputed un-

(1) It may be taken as a rule that the spindle side is debarred from inheritance under all circumstances, at least as long as there is any male collateral however distant.—J.M.D.

(2) I think there is evidence to show that *chundavand* was more common formerly than it is now. It is found to some extent among Jat Sikhs, who came originally from the Panjab.—J.M D.

(3) The answer you are likely to get in questions about illegitimacy is that no case of an illegitimate son being born in the tribe was ever heard of, and illicit relations between men and unmarried women of the same tribe and *got*, being regarded as incest, are probably very rare.—J.M.D.

(4) Or *Gadhelra*.—J.M.D.

(5) There is no doubt that a man who becomes a Hindu ascetic loses his rights of property. The rule is less positive as regards Musalman *fakirs*.—J.M.D.

The family. Rules governing the devolution of property.

chastity. Their rights are not contingent upon their living in the husband's village. Woman's separate property (*stridhan*) is unknown. It is remarkable how wholly, in the minds of the people, the family is represented by its head. At the Regular Settlement the name of the head only was recorded as a rule; and the people still think that it is quite sufficient to send their heads to represent them in court or elsewhere. This feeling, however, is weaker among the Jats than among other tribes; and they have become notorious in consequence.

Adoption.

167. The great object of these rules is to preserve the family property to the agnates. A man without a son, or whose only son has changed his religion, can always adopt (*godna, godlena*); and a widow left sonless can adopt at will, except among the Jats, where, unless the husband has selected the boy, the consent of the heirs is necessary.[1] But the boy to be adopted must be a brother's son, or if there are none available, a cousin in the male line; and no relation in an elder degree than the adopter can be adopted. No cognate can in any circumstances be adopted except by consent of the next heirs, nor can an only child, except among the Rajputs. The Brahmans, however, can adopt sisters' and daughters' sons. There is no restriction as to age, nor as to investiture with the sacred thread, nor that the boy shall be the youngest of the family. The adopted son takes as a real son with children born after his adoption. If the division is by wives, he takes his share first *per capita* of all the sons, and the remainder divide by *chundavand*. He loses all rights in his original family; and, even if his original brothers should die, can only inherit as the son of his adoptive father. A second adoption can only take place when the boy first adopted has died, and can be made by any widow who could have adopted in the first instance. The ceremony of adoption is as follows:—The man seats the boy in his lap (*god*), feeds him with sweetmeats in the presence of the brotherhood, and declares that he has adopted him. If a woman adopt, she gives him her nipple to suck instead of sweetmeats. Sweetmeats are in every case distributed to the brotherhood.

The *Ghar-jawai*.

168. There is a custom called *ghar jawai*, which consists in a sonless man settling his daughter's husband (*jawai*) in his house as his heir, when he and his son after him inherit on the death of the father without son; though if he die sonless the property reverts to the original family, and not to his own agnates. He retains his rights in theory in his original family, though he often abandons them in practice. There is no doubt

(1) Adoption is, I believe, very rare. There is much hesitation in admitting the right of a widow to adopt. In attesting the *Rivaj-'am* the Rors and Gujars of Kaithal denied the right of the widow to adopt under any circumstances, but admitted that a man might adopt a son from among his collateral heirs. But they stated that they had never heard of a case of adoption in their tribes, while Hindu and Musalman Rajputs asserted that adoptions were very rare. Civil courts should be very careful before they apply the maxims of Hindu law to disputed cases of adoption in Indri and Kaithal.—J.M.D.

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The *Ghar-jawai.*

whatever that this custom *did* obtain, for many present land-owners have obtained their property in this way. But the feeling is strongly against it. The Jats, Rors, and Kambohs strenuously deny the right. The Rajputs and Gosains say that the son-in-law does not inherit. The Gujars and Bairagis admit that the custom occurs. The Brahmans say that the son-in-law cannot inherit, but his son, if he has one, can. Perhaps the real state of the case is that the thing is often done by tacit consent, but that probably the next agnates could forbid it. The existance of the name as a well-known term shows that the custom does obtain in some degree.[1]

Gifts, and transfers for considerations.

169. A man may make a stranger of another clan his *bhumbhai* or earth brother, if his near agnates consent, in which case he gives him a definite share of his land on the spot, and the *bhumbhai* loses all rights of inheritance in his original family. The ceremony is completed by public declaration of the transfer and the consent, and by the usual distribution of sweetmeats. According to Elliot (The Races of the N.-W. Provinces, Vol. I, page 228) the *bhumbhai* could not formerly dispose of his land, but this is no longer the case. But some hold that, if the *bhumbhai* has no near agnates, the land reverts to the family of the donor.

Under no circumstances, except as above mentioned, can a land-owner make a gift of land out of the agnate community; and not even within it, except among the Rors; and then if the gift is made in the absence of sons, and a son is born afterwards, it is resumable. Small gifts of land as religious endowments are, however, recognised. Wills and bequests are practically unknown. In old days sales of land were unknown. The right of pre-emption by agnates is universally recognised in the order of right of permanent inheritance, and is almost always asserted by summary petition; but, owing to the uncertainty felt by the people as to the action of the courts, and the costliness of an appeal to them against a purchaser who is usually well off, is often not pursued to trial.[2]

Muhammadan customs.

170. The above abstract of customs applies only to all Hindus and to Musalman Jats, Gujars, Rors, and Kombohs, and to Musalman Rajputs, except the Tunwars of the town of Panipat. These last, who are all Musalmans, and live in daily contact with original Musalmans, follow in many respects the law of Islam. *Per contra* the Saiyids who live in the villages have adopted several of the Hindu restrictions on inheritance and alienation. In both classes, for instance, sons and sons' sons &c., exclude all other heirs. The original Musalmans of the cities follow the law of their faith with very little divergence. The Rains, who are all Musalmans, hold a sort of intermediate position between the two.

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(1) The Jats, Rajputs, Gujars, and Rors of Kaithal said unanimously that the "*ghar-jawai*" could not inherit land.—J.M.D.

(2) Fictitious prices are often entered in deeds in order to defeat pre-emption.—J. M. D.

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Inferior proprietors.

171. The inferior proprietor (*Malik adna*)[1] has full right of property in his holding in severalty, but has no rights of ownership in the common land, the share which appertains to his holding still belonging to the persons from whom he acquired it. This class of proprietors is exceedingly small. In some cases it has been shown that people who do not belong to the proprietory community proper, but who had, by virtue of long possession or otherwise, or by consent, been recorded at Settlement as owners, have been continuously excluded from participation in all special proceeds of the common land, such as compensation for common land taken by Government, as distinguished from the periodical proceeds which the whole cultivating body shares; and these people have been entered as inferior proprietors, their status having been occasionally fixed by judicial decisions. Some few people, too, have acquired land since the Regular Settlement, admittedly in inferior ownership. And a good deal of land in the old cantonments was declared, after full investigation in 1852, to be held as inferior property.

Tenure of Karnal Cantonment lands.

172. When Karnal was first acquired by us, a considerable area of land close to the town was occupied by the cantonments; and this was added to at various times as military requirements expanded, yearly compensation for the revenue so lost being paid to the Mandals. When the cantonment was moved to Ambala, the land was occupied for the purposes of a remount depôt. But as much of it was not needed, it was decided to give up the whole, and lease from the owners so much of it as might be required. But much capital had been expended in the construction of houses, gardens, and the like; and the properties so formed had changed hands for consideration. It was therefore necessary to recognise the interests so acquired. In his minute dated 16th February 1852, laying down the principles upon which the revision of Settlement of 1852 should be made, the Lieutenant-Governor remarked as follows:—

"The Government have determined to relinquish the lands of the Karnal cantonments to the proprietors. The lands will revert to the *biswadars*, between whom and the Mandals the revenue officer must determine a fair *jama*. All the unoccupied lands will be given up unreservedly to the community of *biswadars*. * * * * The houses and compounds occupied by individuals, should be considered as inferior property (*vide* Sec. 118, Directions to Settlement Officers), and a fair *jama* fixed upon them, to be paid by the occupants to the *biswadars*, of which *jama* nine-tenths will go to the Mandals, and one-tenth to the *biswadars*. If any land is retained by Government as attached to their own buildings, this should be entered as *minhai*; and, if it is of considerable extent, a corresponding portion of the payment now made to the Mandals must be continued. But if the land retained is of small extent, there will probably be no objection to discontinue all further payment, and leave the matter thus."

(1) Such owners are usually described as *malik kabza*, and have been so recorded in the Settlement records of Indri and Kaithal.—J. M. D.

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Tenure of Karnal [illegible] lands.

A careful investigation was therefore made on the lines thus laid down. The area retained as Government property was very small, and remained unassessed. Certain occupied plots were declared the inferior property of the occupiers, and the remainder common land of the village. In 1855-56 Government declared these inferior properties to be transferable and heritable. Some few of the occupiers who could show no sufficient title had been held to have only a right of occupancy for life, and were so recorded. In some of these latter cases the village has recovered the land on the death of the occupier; in others the heirs are still in possession, and have in some cases judicially established their proprietory right. An area of about 2,100 acres in Karnal and four adjacent villages, was held from that time by Government on a lease at a rental of Rs. 2,804 for the purposes of a breeding stud, and afterwards of a cattle farm. The land has recently been purchased by Government for Rs. 75,077.

Riparian customs.

173. The deep stream is recognised as the boundary between villages on opposite side of the river all along the part of the Jamna recently under settlement, and has been declared by Government to be the boundary between Karnal and the districts of Saharanpur, Muzaffarnagar, and Meerut (G. of I. Home Dept. Notification No. 136, dated 12th January 1884). In 1878 a considerable cultivated area was given up without dispute by the Tanda people to our villages under the operation of this rule. The custom is recorded in the administration papers on both sides of the river. Mr. Ibbetson writes :—

"In former days a custom existed throughout the riverain villages of the tract, that, when an individual land-owner had his land cut away by the river, an equivalent area from the common land was given him in exchange, the loss being thus borne, as far as possible, by the whole community. Numerous old letters attest the universality of this custom. Unfortunately, the old administration papers[1] are silent on the subject. Yet in 1856 the Government, in concurrence with the Board, ruled that although no provision was contained in the Settlement record, yet the allotment of common land in these cases was borne out by usage, and should be enforced. In preparing our new administration papers, I directed particular attention to the record of this very admirable and equitable custom, wherever it might still be found to exist. In some of the villages it was found in full force, and recorded accordingly; in fact, I know of several instances in which it has been acted upon within the last few years. But in many villages the people declared that no such custom now obtained; and I did not think it right to propose to record for future guidance a rule, however admirable, which they averred was not at present in force. But the decadence of the custom is much to be regretted."

Tenants and rent in general.

174. Table No. XVI shows the number of tenancy holdings and the gross area held under each of the main forms of tenancy as they stood in 1888-89, while Table No. XXI gives the current

(1) The custom was recorded, I believe, in some of the administration papers of the Indri *pargana* at the 1st Regular Settlement, but it has largely fallen into disuse.—J.M.D.

rent-rates of various kinds of land as returned in 1888-89. But the accuracy of the figures given in table XXI is doubtful; indeed it is impossible to state general rent-rates which shall even approximately represent the letting value of land throughout a whole district.

Status of tenants in *tahsil* Panipat and *pargana* Karnal.

175. The status of the tenant with right of occupancy, which has been the subject of so much dispute, was found to exist in this district in the days of the early Summary Settlements. In 1829-31 elaborate reports on the tenures of the tract settled by Mr. Ibbetson were prepared for Government on lines laid down by it. From these we find that these tenants included all regular cultivators, whether resident or of another village; and that the tenants-at-will consisted wholly of "village servants, "itinerant cultivators, persons who, from a variety of causes, "may have temporarily abandoned their village, and individuals "who do not make agriculture their chief occupation, such as "weavers, *banias*, &c. They usually receive from year to year "such portions of land as their needs may require, sometimes "from the community, but more often from individual members, "usually on the condition of becoming responsible for the corres-"ponding portion of the revenue. Occasionally the landlord "receives a very trifling amount of rent; but more frequently "he shares the produce according to agreement, and is alone "responsible for the dues of the State. These tenants are at "liberty to give up the land when they please, and are removable "at the will of the community or landlord." All other tenants, save those described above, could not be ejected so long as they continued to occupy their lands and to pay their share of the Government revenue. They shared equally with the owners in the proceeds of the common lands, such as the sale of firewood or grass, or grazing dues paid by other villages. The title of the landlord was preserved by "the form of demanding *sirina* or one-"fortieth of the produce, when perhaps only a few grains were "granted as an acknowledgment of holding the land from a "superior," or by the tenant paying his share of the village expenses through his landlord, or by the landlord's family priest taking his dues from the tenant also. These tenants, moreover, did not "claim the rights of sale or transfer; but, with the "abhorrence with which the cultivating class view the sale of "land, they are on an equality in every essential particular with "the landlord." The non-resident (*pahi*) cultivator even paid only 75 per cent. of the revenue which he would have paid had he been resident, and bore no share of the village expenses; yet he enjoyed equal rights of occupancy with the resident tenant, and, in fact, "possessed every substantial benefit in an equal "degree with the owner, while paying much lower rates." The Settlement Officer pointed out that "it was chiefly the good "faith which all classes of the community preserve in their dealings "with each other," that prevented awkward claims by tenants to proprietory rights, and "rendered disputes very infrequent with respect to property so ill-defined." As a fact these tenants have, in some cases, been declared owners by the courts on the

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ground that the tenants had always enjoyed a share of the common produce, and in apparent ignorance of the fact that such was the almost universal rule throughout the district. The Collector of 1831 who had had long and intimate experience of the people, and whose report was most interesting and complete, discussed at length the apparent hardship to the owner involved in these tenures, especially those of non-resident tenants, and the advisability of recognising his right to rent in some form; but he summed up strongly against it, as opposed to the ideas of the people, and certain to be productive of endless disputes and ill-feeling.

It is curious how slowly this state of things has changed. When the revenue absorbed the whole margin left from the produce after supporting the cultivator, it was natural that rent should be non-existent. In fact revenue was rent, as the use of the terms revenue-free and rent-free as synonymous for lands of which the revenue was assigned shows. It was not till about 1850 that Government interfered to limit the demand of assignees of land revenue to the Government share of the produce; and previous to that date they took rent from the owners exactly as if they had been landlords themselves. But, as the Government demand was gradually limited to a moderate share of the produce, a margin was left in favour of the producer from which rent could fairly have been taken. As a fact, in the Karnal Nardak, where the Mandal assignees took rent from owners and tenants alike till 1847, and where the uncertainty of the yield renders it easier for a man without capital to pay a share of the produce than a share of the revenue, because, although the total amount paid is larger, it is paid in instalments which vary with the means of paying it, tenants, as a rule, still pay a share of the produce *(batai)*. But throughout the rest of Panipat and *pargana* Karnal, except in the city of Panipat and one or two similar revenue-free villages held by non-cultivating owners, where cash, and still more commonly, grain rents have always been taken, and excepting, of course, the Skinner villages, rent is still almost unknown. Mr. Ibbetson wrote in 1880:—

"I know of hardly a single case outside the cities and the villages already mentioned, in which rent is taken from tenants-at-will even, whose cultivation dates from last Settlement. Tenants of later standing, and especially those who have only lately begun to cultivate often pay rent; in the Khadir perhaps generally. But in a very large number of cases they still pay revenue only; and, where rent is paid, it is generally very much below the competition value of the land. This state of things is, however, gradually changing. The people have awakened to the possibility of demanding rent, a good deal, I think, in consequence of Settlement operations, the inquiries attending them, and the new ideas which they have suggested. The change is, however, extraordinarily slow. Even now the great majority of tenants pay no rent; and especially is there a strong feeling in favour of the tenants-at-will of old-standing; in fact the people are inclined to deal more leniently with them than with the occupancy tenants, for the former claim

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no rights, while the latter do. Of course the equal distribution of revenue over the land does, in fact, mean a certain degree of profit to the owners; for they generally hold the best land, so that they pay less for their land in proportion to its value than the tenants pay for theirs; while, on the outlying and inferior portions, the revenue thus distributed, especially in the Khadir, is often a very fair rent for the land.

"The difficulty with which the idea of rent is received is well exemplified in the cultivation of the common land. Of course an individual owner cultivating this land is really a tenant holding from the community as a whole. But the idea of taking rent from him is, even now, quite beyond the capacity of the people. The owner who breaks up common land will, of course, pay such revenue as the method of distribution of revenue in force will allot to it; but he has by common custom a right to hold the land free from liability of ejectment until a division is effected; and even then the land must be included in his share, except in so far as it exceeds the area to which he is entitled. Cases have been not infrequent in which the people have, at division, allowed individual owners to retain the common land which they had broken up, even though considerably in excess of their share; and it is by no means uncommon for owners to build wells at their own cost in the common land, so certain do they feel of the security of their tenure. In short, as already pointed out, the conclusion is irresistible that, in old times, anybody who broke up new land, or even who was given old land to cultivate, except as an obviously temporary measure, acquired a right to hold that land so long as he paid the revenue on it; and that, whether he were an owner or not. The revenue was so heavy that the village was only too glad to get cultivators to accept land on these terms; and the explanation of the fact that the people even now fail to distinguish between occupancy tenants and tenants-at-will of any standing is, not that old custom failed to raise the ancient tenants approximately to a level with owners, but that it treated both owners and tenants of all kinds alike so far as their right of cultivating possession was concerned. In 1850 the Sadr Board ruled that "the common custom of India gave to the man who reclaimed "waste a right to transmit the land to his descendants." That is the common custom here; but what he transmits is the right of cultivating possession, and not of property."

Kinds of rents and other tenants' dues.

176. Grain rents *(ijara)* are mostly in vogue in the city of Panipat and the few similar villages near it. They are usually paid one-third in wheat and two-thirds in the inferior grains. Cash rents are taken chiefly in the Khadir, either as a lump sum *(chakota)*, or a percentage in addition to the revenue *(malikana)*, or a rate per *bigah*. A share of the produce is taken either by actual division *(batai)*, or by estimate of the yield *(kan)*. The owner takes no share of the fodder except when the grain has failed and only fodder is produced. The dues of the *chamars* and the allowances of the Brahman and Saiyid are deducted in *batai* before the division is made; the dues of other village menials are paid by the cultivator alone. Where a share of the produce is taken, money rates on area for each staple *(zabti)* are generally taken on sugar, cotton, tobacco, pepper, most vegetables and spices, *methi*

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and *chari*, grown for fodder only; as in all except the last two, which are purely fodder crops, the produce is not collected at one time and spot, so that division would be difficult and dishonesty easy. In the Khadir and Bangar the share of the produce commonly taken is one-third on all lands, though the Skinners take two-fifths on unirrigated crops. In the Nardak the custom is to take one-fourth only; but irrigated or highly cultivated land, the area of which is very small, is never let on these terms.

The tenants, as a rule, are responsible for providing carts and bedsteads for the use of Government officials. But in the villages they pay no other dues. In the city of Panipat and the similar villages near it they generally pay many miscellaneous dues *(abwab)* such as milk, green wheat for fodder, earth for mending houses, dungcakes, &c.; and the Skinners also take many extra cesses, often making their tenants pay all the Government cesses, the *lambardari* allowances, the *patwari's* pay, and a levy on account of expenses of management called *kharcha*. There are some very curious dues paid in the city of Panipat which, though not actually rent, are paid by purchasers of land to the original proprietor from whom they purchased it, in consideration of certain rights of ownership which did not pass with the sale. The principal of these are *hakk rakba* and *hakk ab*. If a man sells his fields, his property in the *daul* or dividing ridges does not pass unless expressly specified; so he takes what is called *hakk rakba* and is responsible for keeping the ridges in order. So again, if the well was not distinctly specified, the property in it does not pass, though the soil in which it stands being no longer his, he cannot get near it to use it. But he takes *hakk ab*, and it is a disputed point whether he cannot forbid the purchaser to use the well. Each of these dues is generally fixed at one-eighth of the rent or owner's share of the produce. Again, if a man wishes to carry water along another's *daul*, he pays *daulana*—generally a lump payment of 5 to 10 sers a harvest.

Tenants and rents in Indri.

177. The last two paragraphs are taken almost entirely from Mr. Ibbetson's Settlement Report, and relate to the state of things existing in Panipat and *pargana* Karnal ten years ago. If the figures in statement XVI are trustworthy nearly two-thirds of the tenants-at-will at Panipat still pay "at revenue rates with or without *malikana*." In Indri it was found at the recent Settlement that 8 per cent. of the land was cultivated by occupancy tenants and 26 per cent. by tenants-at-will. The number of the latter class who pay at revenue rates is less than one-fourth. True cash rents are almost unknown in the Nardak, but one-eighth of the land held by tenants-at-will in the Bangar and one-fifth in the Khadir are cultivated on these terms. The rent rates deduced by Mr. Douie from the statistics of cash rents were :—

Circle.	Chahi.	Barani.	Sailab of Jamna.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Khadir ...	4 8 6	2 12 0	1 14 0
Bangar ...	3 12 0	2 0 0	...

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Tenants and rents in Indri.

Zabti rents are taken for cane, cotton, tobacco, red pepper, and vegetables. The average rates are Rs. 7 an acre for cane, Rs. 6 for irrigated, and Rs. 4 for unirrigated cotton, Rs. 5-4 for tobacco, and Rs. 4-8 for chilies and vegetables. The average for *chari* is Rs. 2 in the Khadir, Rs. 1-13 in the Bangar, and Rs. 1-9-6 in the Nardak. Most occupancy tenants pay revenue and cesses with a small addition for *malikana*, but in the Khadir a good many of them divide the crop with the landlord.

Tenants-at-will as a rule pay rent in the shape of a share of the produce. In the Khadir one-third is usually paid and in the Nardak one-fourth. In the Bangar both these rates are common. Owners cultivating their land through tenants very often take, in addition to the customary share of produce, certain payments in grain, under the name of *kharch*. These usually vary from half to two sers per maund, and are deducted from the total produce. In considering what the owner and tenant actually receive respectively allowance must be made for the payments made to Brahmans and village menials from the common heap before division. In Rajput villages the deduction on this account amounts to about 12 per cent. and in Ror and Jat villages to about 8 or 9 per cent. of the outturn. It is difficult to calculate exactly the amounts, some menials being paid at so much per maund, and others at so much per plough, but the following table gives a very fair idea of what is paid in a Jat village in the Khadir. It is assumed that a *lana* or cultivating association, owning four ploughs, sows 30 acres of land in the *rabi* harvest, ten being well irrigated; and twenty unirrigated; that the irrigated land yields at the rate of 10 maunds, and the dry land at the rate of 5 maunds per acre. The total produce is, therefore, 200 maunds of grain.

To whom paid.	Rate in sers.	Amount paid. Maunds.	Amount paid. Sers.	Remarks.
Seorhi to Brahman Parohit	1 ser per maund	5	0	
Pachauli to Brahman* ...	¼ ,, ,, ,,	1	10	* Paid to Brahman who cooks for village guests or Government servants.
Begar Chamar† ...	½ ,, ,, ,,	2	20	
Badhi	20 sers ,, plough	2	0	
Lohar	20 ,, ,, ,,	2	0	
Darzi‡	10 ,, ,, ,,	1	0	† Higher rates are paid to a *chamar* who assists in cultivation.
Kumhar	10 ,, ,,	1	0	
Jhinwar	7½ ,, ,,	...	30	
Nai...	7½ ,, ,, ,,	...	30	‡ This is not really a fixed charge; the *darzi* gets more or less according to the amount of work he does.
Dhobi	7½ ,, ,, ,,	...	30	
Chuhra	5 ,, ,, ,,	...	20	
Total ...	...	17	20	

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Tenants and rents in Kaithal.

178. According to the returns prepared at Settlement only 22 per cent. of the cultivated land in Kaithal was in the hands of tenants. Above 3 per cent. was held by occupancy tenants, and less than 19 per cent. by tenants-at-will. The number of occupancy tenants has been increased by the orders recently passed on the case of the Kaithal leased villages. More than half of the tenants-at-will pay only the revenue and cesses. The proportion of such tenants paying competition rents so called in cash or grain is one-third in the Bangar and Andarwar, two-thirds in the Naili, and half in the other circles. One-fifth of the grain rents in the Bangar come from one of the *pattis* of Kaithal, and in the southern half of the circle division of crop is unknown except in one or two canal villages. When a tenant's rent is stated at revenue and cesses it is not meant that he pays the revenue rate fixed at last Settlement, but a proportional share of the demand as spread over present cultivation. Indeed in the Nardak and Bangar a fresh distribution of the revenue over holdings is often made each *kharif* according to the area actually under crop. In the Nardak a *bachh* on all cattle-grazing in the village is frequently made, and only the balance put on the land. In both circles the Spring crops are as a rule so scanty that the *rabi* demand is borrowed and repaid with interest out of the proceeds of the *ghi* made in the rainy season. In the Bangar, Nardak, Naili, and Andarwar one-fourth is the rate of *batai* for unirrigated crops. When canal irrigated crops are divided the owner takes one-fifth and the tenant pays the occupier's rate. In the Powadh one-third is the usual rate of *batai*, but one-fourth is not uncommon. In all circles both grain and straw are divided, but the owner's share of the straw is sometimes less than his share of the grain. The deduction to be made for grain payments to village menials, etc., amounts to about one-tenth of the produce.

Zabti rents are rare in the Bangar and Nardak. They run highest in the Powadh where the usual rent for cane is Rs. 2, for cotton, tobacco, and vegetables, Re. 1, and for *chari*, 8 annas per *kachcha bigah*. Cash rents other than revenue and cesses are not often met with, and are very moderate. Kaithal is a country of small holdings and numerous land-owners. Less than 6 per cent. of the soil is cultivated by tenants-at-will who are not also land-owners or occupancy tenants. The competition for land is therefore feeble. Besides where the outturn is as uncertain as in the greater part of Kaithal, no man in his senses would agree to pay a high cash rent. Still the rents in Kaithal are much lower than those realized in similar tracts in Hissar. An unirrigated holding rented at more than 8 annas a *pakka bigah*, or 13 annas an acre, can scarcely be found in the whole Nardak and Bangar. The smallness of the rents realized for canal lands is very striking.

Petty village grantees.

179. Petty village grants are not uncommon. Sometimes the land is leased to the grantee at a favourable rent, or on condition of payment of revenue only; sometimes the owner cultivates and

Petty village grantees.

pays the revenue making over the produce to the grantee; while occasionally the grant consists of the rights of property in the land, which, subject to the usual incidents, such as responsibility for revenue and the like, vest in the person performing certain specified services at such time and for so long as he performs them. These grants are most commonly made to village menials and watchmen on condition of, or in payment for, services rendered, to attendants at temples, mosques, shrines, or village rest-houses, so long as they perform the duties of the post, and for maintenance of monasteries, holy men, teachers at religious schools, and the like. They are called *dohli* grants; are usually made by the village or a sub-division of it, less frequently by individual owners; and are personal to the grantee and resumable at pleasure, though seldom resumed, and often continued to heirs. The *mafi* registers of Indri contained many petty village grants of this description. These have now been put on their proper footing, the assignment being resumed as far as Government is concerned, and the land owners being given an opportunity, of which they often availed themselves, of excluding the land from assessment in distributing the new demand over holdings. The holders of these grants have been generally in Indri recorded as "malik kabza." If they cease to do service and the land owners desire to put an end to the assignment, the land should at once be assessed at village rates, and the revenue imposed credited to the *malba*.

Common expenditure of the village.

180. Every village keeps open-house to the countryside. A traveller *(bateo)* who has no friends in the village puts up, as a matter of course, in the common-room of the village, and receives food and tobacco free; though he will, if possible, choose a village inhabited by his own tribe. Every Government servant passing through the village is fed in like manner; and, though this custom is a source of considerable expense to villages on the main roads, it is founded upon the feeling of the people, and not primarily upon the extortion of the officials. Hospitality of this sort is considered a social duty, to refuse it is an insult, and a village which was grudging in its exercise would be dishonoured in the sight of its fellows.

The headmen, when absent on village business, charge their expenses, end often perhaps a little more, to the village account. The village common-room, the village shrines, the drinking well, and other public structures, have to be maintained and kept in repair, and occasionally new ones built. Small religious offerings are made on occasion in the name of the villagers; and a menial settling for the first time in the village generally receives some pecuniary help to enable him to start fairly. Process fees *(dastakana)*, too, are levied on the village if the revenue is in arrears. All these and similar expenses constitute the common expenditure of the village called *malba*, literally meaning refuse sweepings, because of the many miscellaneous items which it includes.

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Common expenditure of the village.

There is generally a *bania* appointed as *malbabardar* for the village or a sub-division of it; and the headmen draw the necessary funds from him, the accounts being audited by the community when the half-yearly instalment of revenue is collected. The old administration papers of Panipat and *pargana* Karnal fixed a very high limit, generally 6¼ per cent. on the revenue, beyond which the headmen could not incur these expenses without the previous sanction of the community. In the papers of Mr. Ibbetson's Settlement the very much narrower limits fixed by Financial Commissioner's Circular No. 4 of 1860 were inserted. The headmen grumbled dreadfully; for village hospitality accounts for most of the expenses, these must be incurred, and in many of the larger villages the necessary expenses will no doubt often exceed the limits: while among the Jats, at any rate, some of the evil-disposed are tolerably certain to object whenever they have an opportunity of making things uncomfortable for the headmen. But, on the other hand, it is probable that the headmen used often to make illegitimate profits from the *malba*, realizing up to the limits fixed without regard to the expenditure. In Indri and Kaithal the arrangement in force is generally that known as *kachcha malba*, that is to say, the actual expenditure incurred is recovered from the co-proprietors. So long as the village community is fairly compact, and money-lenders have not a strong hold on the land, this is probably the best plan.

Common income of the village; village dues.

181. The proceeds of the village may be divided into two classes; first are the occasional proceeds derived from the sale or lease of common property, such as the sale of jangal, the lease of pasture to travelling herds of cattle, the sale of the nitrous efflorescense (*rehi*), which abounds in old homesteads, for the purpose of manure or the manufacture of saltpetre, the small dues sometimes realized from carts which come for dry firewood, the fine often paid by strangers for permission to collect kino, to cut thatching grass, and the like. These are, if of any material amount, generally divided at once among the owners, and the tenants have no share in them. If petty, they are paid into the credit of the general *malba* accounts. The second class consists of the regular dues, which are included in and collected with the half-yearly revenue account, and in which all revenue-payers, whether owners or tenants, share proportionally. The most important head of income is the *kurhi kamini* or hearth tax. This is collected in almost every village, and the usual annual rate is Rs. 2 per hearth; but in small villages, where the common expenses are inconsiderable, it varies with their amount. Thus the fact that it has not been collected at all for several years, when other common income has been sufficient to cover the common expenditure, is by no means decisive against the right to collect. It is paid only by non-cultivators; and *Dakauts*, sweepers, *Dums*, barbers, and washermen, so long as they exercise their calling, are exempt. It formed part of the old *chaubachha* or four-fold

Common income of the village; village dues.

levy taken in old days on *pag, tag, kurhi,* and *punchhi* or the head-cloth of the men, the waist string of the male children, the hearth of the non-cultivators, and the tails of their cattle; and to which recourse was often had to cover losses caused by cultivators abandoning their lands and failing to pay the revenue due on them. A discussion of the real nature of *kurhi kamini* will be found in para. 268 of Mr. Ibbetson's Settlement Report. The above remarks apply primarily to the part of the district which he settled. The dues payable by residents, who are not members of the proprietory body, in Indri and Kaithal villages, have been detailed in the administration paper of each estate.

Besides the hearth tax, there are the grazing dues, *chugai* or *charai*. This is chiefly levied in the Nardak, where pasture is extensive, and non-proprietors often keep numerous flocks and herds. The rate is usually 8 annas per milch buffalo, 4 annas per cow, 2 annas per weaned calf, and Rs. 3 to 5 per hundred sheep or goats. In Kaithal the usual rate is one anna per head for sheep and goats. The cattle of proprietors and all plough cattle are always exempt; and, as a rule, the cattle of all cultivators graze free. This cess, when realized in villages with limited pasture, is generally taken only in years when the village expenses are very largely in excess of the common income. It is a payment in consideration of the right of grazing on the common lands, and must be carefully distinguished from the distribution of revenue upon cattle, which is generally adopted in the Nardak villages when a drought has rendered the number of cattle possessed by each a better test of ability to bear the burden of the revenue than is afforded by the areas of fields which have produced nothing. In this latter case the cattle of owners are of course included. Besides these dues there is an annual levy of Rs. 2 upon every oil press, which is occasionally taken; and a small periodical payment is made, chiefly in the Nardak, by every non-cultivator who cuts firewood or *pala* from the common *jangals*, and is usually quoted at Re. 1 a year on each axe or bill-hook *(gandasa)*.

The distribution of the revenue.

182. Mr. Ibbetson gives the following description of the six-monthly distribution of the revenue demands in the villages of the tract which he settled:—

"When the half-yearly instalment of revenue becomes due, the *malba* account is first audited. The list by which the hearth tax is to be levied is then made out, and this is generally so adjusted as to leave a fair share of the general expenses to be paid by the cultivators, who are exempt from the tax. The balance so left, after deducting the grazing dues, is added to the Government revenue (*hala*, probably so-called because originally distributed over ploughs or *hals*) and cesses; and a distribution (*bachh*) of the whole is then made over the cultivated land. This distribution is almost always by an all-round rate upon areas. The distribution of land according to quality made this method of distribution fair

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enough in the first instance; but greater or less inequalities have grown up in most villages, and especially some of our new systems lead to very peculiar results in connection with it. Still the practice has been adhered to with extraordinary unanimity, and payment by shares or by ploughs or by proportional rates on soils, are the exceptions. In some few villages the distribution is made on the area actually under the plough in each year; but, as a rule, land entered as cultivated at Settlement is paid for, whether cultivated or not (*khari pari ka dam dena*). The newly broken up land, if chiefly in the hands of tenants, is included; and sometimes the original Settlement rate per acre is charged on this, with the result of reducing the rate upon the old cultivation. When the land has been broken up by owners it is often not included at all, or not till a considerable area has been broken up, when all land so cultivated up to date is included once for all."

The headmen then collect (*ugahna*) the revenue. Tenants of any standing almost always pay direct; new tenants often pay through the owners even when they pay nothing in excess of the sum entered as due on their land in the distribution list or *fard dal bachh*. Many of the well-to-do pay direct from their private purse; and already the number that do so is considerable, while it is becoming every day more and more the custom for every one who has the ready money to pay in this manner. Those who have not sufficient cash, or who prefer not to pay direct, pay by *inch*; that is they give in the name of their banker (*sah* or *sahukar*). The *patwari* then gives each banker a note of the sum due by each of his clients, and the banker pays in the total amount and debits the items in their respective accounts. The *malba* account is settled, the revenue is paid, the headmen take their allowances, and the *ugahi* or collection is at an end."

Agriculture partnerships or *lanas*.

183. Much of the agriculture of the district is conducted by means of *lanas*, which are associations of households or individuals, each contributing oxen, or labour, or both, and the whole *lana* working jointly, and cultivating certain lands of which some of the members of the association have the disposal, whether as owners or tenants. The agreements for them are made for the agricultural year, dating from the day after *Dasehra*, the 11th of the second half of Jeth. In the Nardak and elsewhere, where the depth of water necessitates a large staff of bullocks, the *lana* often includes seven or eight ploughs of two oxen each; in other places, more often three or four. The sharers are called *sajji (sajja*, a share*)*; if a man contributes a full plough he is called *ek hal ka sajji*; if a half plough *kachwa ka sajji* from *kachwa*, the space in the yoke occupied by the neck of one bullock; if only his personal labour *ji ka sajji*, or sharer of his person. This last class never contribute land, and are generally *Chamars*; while a man who contributes land is seldom or never a *ji ka sajji*. If a woman, not of the family of any of the landed sharers, is admitted, she is called *khurpi ka sajji*, or a sharer of a hoe, and takes half the share of a *ji ka sajji*.

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Agricultural partnerships or *lanas*.

The distribution of the proceeds and the payment of revenue is conducted in two different methods. In all cases the whole of the produce is thrown together, without regard to the yield of individual fields. Throughout the Nardak, and generally among Rajputs, the whole number of heads (*ang*) in the *lana* are counted. The whole of the fodder and the price of all iron used in the cultivation are divided over the oxen equally, the owner of the bullocks taking all the straw. The grain is collected, the seed-grain repaid to the *bania* with interest, and the dues of the *chamars* and the religious offerings are deducted. One-fourth of the remainder is then separated as *hakimi hissa*, or the share of the ruler; and this is divided among the people who contributed the land in proportion to the area contributed by each, and these people pay each the revenue due on his own land. The remainder is then divided upon the heads of men and oxen; an ox generally taking twice the share of a man among the Rajputs, because the owners provide most of the cattle, while many of the men are non-proprietors; and also in the villages where irrigation is extensive, because the cattle there have such hard work. For this latter reason, an ox sometimes takes twice as much as a man in the spring, and only as much in the autumn harvest, when there is no irrigation. In other villages oxen and men share equally. In all cases the costs of cultivation, except the iron, are divided on these same shares.

In the second method of distribution the accounts of the *lana*, which is also called *ratha*, are kept by ploughs, each sharer contributing a certain number of half ploughs. To make up the number of men required for his oxen, a sharer will often take a *ji ka sajji* into partnership; but in this case the latter claims from the sharer only, and not from the *lana* as a whole, in which he is only recognised as a man attached to one of the ploughs. The whole costs and proceeds of cultivation, and the revenue due on the whole of the land, are divided equally over the ploughs without any regard to the area of land contributed by each plough. This sort of *lana* is also called *basira*. The *ji ka sajji* in this case takes from the man who engaged him one-fourth, or if there are already two able-bodied men on the plough, one-fifth of the produce allotted to one plough, and pays the same proportion of the revenue, the division being by heads, and men and oxen sharing equally. He receives no share of the fodder, and pays no share of the cost of the iron or seed. Under this system the *ji ka sajji* is entitled to an advance of Rs. 20 to 25 free of interest, and further advances at discretion at reasonable rates from his employer. His account is seldom cleared off, and till it is cleared off he does household work also; so that he becomes attached to his master as a sort of serf, and if a second employer takes him, he is bound to first settle his account with the old employer. The debt is looked upon by the people as a "body debt" (*sarir ka karza*), and they hold that they are entitled to compel the man to work till he has cleared it off, and grumble much at our law refusing to endorse this view. In all cases the *ji ka sajji* is expected to do much of the hardest part of the labour, such as

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Agricultural partnerships or *lanas*.

ploughing; and they are much more used by Gujars and Rajputs than by Jats or Rors. Among the latter the women of the family are often counted and get shares, which the *ji ka sajji's* wife does not.

Where well irrigation is largely developed, the advantages derived from this system of agricultural partnership are very great. It enables the individual owners to keep much more powerful oxen than they could afford to do if each man cultivated his own land only. A *lana* in the Indri Bangar cultivates from 40 to 50 acres of land, about a third of which is probably irrigated. Sugarcane *lanas* (*kolhu ka lana*) are also formed (*see* paras. 279-280 of Mr. Ibbetson's Settlement Report).

Dangwara is the name of a system by which two or more owners club their cattle together, either for the year or for a special job. The united cattle work for each in proportion to the number of oxen contributed; and the partners have no further claims upon one another, each keeping his land and its produce and revenue distinct.

ricultural labourers.

184. Hired labour is made but little use of by the villagers, except at harvest time. The non-cultivating Saiyid and the like, however, often cultivate by servants. A labourer hired by the month or year is called *kamera*. He gets 18 to 20 maunds of grain a year and his mid-day meal, or Rs. 3 a month, or his board and 8 annas a month, and often has some old clothes given him. A lad will get Rs. 2 a month, and an old man who watches the crops Re. 1 and food twice a day. They always get double pay in the two harvest months. They are of course very poor, more so than the poorest landowners. Labourers hired by the day are called *mazdur*. They get their mid-day meal, and enough corn to give them grain worth about two-and-a-half annas. But in the press of harvest, and specially in the cities, wages often rise to six annas a day or more. The young men of the Nardak, when they have cut their early gram or rice, flock down to the canal and riverain tracts for employment as harvest labourers.

The wages of labour prevailing at different periods are shown in Table No. XXVII, though the figures refer to the labour market of towns rather than to that of villages.

185. Mr. Ibbetson thus describes the village *bania* of Karnal:—

" The village banker or *Sahukar* is a much, and, in my opinion, generally a very wrongfully, abused person. Rapacious Jews of the worst type, to whom every sort of chicanery and rascality is the chief joy of life, and in whose hands the illiterate villager is as helpless as a child, do exist, especially in the cities. But they are well-known, and only had recourse to in the last resort. * * * * * *

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The village money-lender; village banking.

"Nor is the banker himself generally so exacting as he is often said to be. He charges monthly interest at the rate of a *paisa* in the rupee—18¾ per cent. per annum—when his client is a substantial man, and from 25 per cent. upwards when the credit of the latter is doubtful. He credits grain received at a ser per rupee more, and debits it at as much less than the market rate. But his chances of loss are often great, the periods of credit are generally long, and at the time of settlement allowances are made and a compromise effected more generally than would be thought possible. * * * * * In time of drought and famine the *bania* is the villager's main stay; without him he would simply starve. In fact the function of a *bania* in a village is very like that of the air-chamber in a fire-engine. He receives the produce of the village, the supply of which is fitful and intermittent, stores it up, and emits it in a steady and effective stream. And if some power is lost in the process, it is only the cost at which all machinery is worked; for force cannot be transmuted from one into another and more serviceable one without some part of it being lost on the way."

The village accountant.

186. The *patwari* is in these parts empathically a Government servant, the *maibabardar,* who corresponds to the Panjab *dharwai,* usually keeping the village accounts. Among the Nardak Rajputs especially, the *patwari* often knows little of the private arrangements of the community. But in the remainder of the tract the *patwari* often has the whole matter of the distribution and collection of Government revenue in his own hands. Still it is wonderful how many of the *patwaris* possess the entire confidence of the villagers. Mr. Ibbetson writes :—

"No doubt a good deal goes on which we should be unable to approve of. I believe that only exceptionally scrupulous *patwaris* ever pay their bill with the village *bania*, the great majority living free at the expense of the village. But I do not think that a *patwari*, who does so, is necessarily corrupt or extortionate. The custom is in consonance with the habits of the people; the burden is so widely distributed as to be hardly perceptible; and, as the whole contribute equally, there is no temptation to partiality. So long as the *patwari* is impartial and not too luxurious in his style of living, the people are well content to secure at the price the good offices of one who has very much in his hands, and are, perhaps, not sorry to have little entries in *bania's* account books which can be brought up against him in case of need; and the gratification is continued, as a matter of course, often, probably, without being asked for. But if he fails in these respects, there is trouble. Of course where such a state of things is discovered, it is necessary to take notice of it; but I am not sure that it is always wise to discover it. Even if it should tend to destroy his independence as between the Government and the village—which I doubt, for his appointment rests with Government—it also tends to keep him impartial as between individual villagers; and the latter quality is the more important, because so much the oftener called into play."

Village menials.

187. The menials or *kamins* form a very important part of the village community; and nothing is thought to be so effective an

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Village menials.

assertion of the poverty of a village as to say that the *kamins* have left it. They perform all the *begar*, or work not paid for by the job; and this includes the *sarkari begar*, or services performed free for Government officials when travelling. For this they are specially paid; and when, in 1820, Lord Hastings issued a proclamation abolishing *begar*, or forced labour as it was called, the *kamins* petitioned the Collector to revoke the obnoxious order, as, in the Collector's words, "they were deprived of their only means "of subsistance, as their services were no longer called for "and their allowance no longer paid them." This is, of course, an exaggeration; and forced labour is sometimes so taken as to be a real injury to the people. But for the ordinary services, which the custom of the country prescribes, the givers are fully paid by the cultivators, who, and not the menials, are the people to be considered. The payment to menials is made either by a share of the produce, or by a fixed allowance upon the plough or Persian wheel. The *begar* is done by the various houses in accordance with a *thikar* or rotation list kept by the *thikar* Bania (see para. 191).

Chamars.

188. *Chamars* (tanners and cobblers) are in these parts by far the most important class of menials; for, besides their function as artisans, they perform a very considerable part of the agricultural labour. They numbered 54,067 at the Census of 1881 or about 9 per cent. of the total population of the district as then constituted. On the 11th of the second half of Jeth, the day after Dasehra, when the arrangements for the ensuing agricultural year are always made, the *lanas* and households agree how many *Chamars* each wants, and inform the *thikar* Bania, who distributes the various houses of *Chamars* among them by lot. Each *lana* then agrees with its *Chamars* whether they will be *kamai ke*, or *begar ke* or *sarkari begar ke Chamars*. The *kamai* or *lana ka Chamar* (*kamana*—to labour) receives either a twentieth or a twenty-oneth part of the *grain* produced on the *lana*, having no share in any other produce; and for this he provides an able-bodied man to be always at work in the fields, and makes and mends all the boots and leather articles needed by the *lana*. The *begar ka Chamar* receives a fortieth or forty-oneth part of the grain; and for this he provides a man to work in the fields whenever special work is in hand, such as weeding, harvest, &c. He also gives two pairs of boots a year for the plough-man, and two for the woman, who brings the bread into the fields; and one ox-whip (*narka*), and a leather rope (*santa*) to fix the yoke (*jua*) to the plough, in the half year and does all the necessary mending. The *sarkari begar ka Chamar* takes an eightieth or eighty-oneth part of the grain; and gives a *narka* and *santa* half-yearly, mends boots, and does Government *begar*. Besides the above dues, the *Chamars* always have some grain left them on the threshing floor, called *chhor*, often a considerable quantity. The *Chamars* are the coolies of the tract. They cut grass, carry wood, put up tents, carry bundles, act as watchmen and the like for officials; and this work is

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Chamars.

shared by *all* the *Chamars* in the village. They take the skins of all the animals which die in the village, except those which die on Saturday or Sunday, or the first which dies of cattle plague. They generally give one pair of boots per ox, and two pairs per buffalo skin so taken, to the owner. They and the *Chuhras* take the flesh also between them, the most usual division being that the *Chamars* take that of cloven-footed animals, and the *Chuhras* that of whole-footed animals and abortions.

Other menials.

189. The *Badhi* or carpenter receives a fixed allowance; generally 40 to 50 sers per Persian wheel, or half as much per plough; and a sheaf (*bhar*) and small bundle (*gaira*) of corn; the *bhar* yielding perhaps 10 sers of grain and the *gaira* half as much. For this he repairs all agricultural implements and household furniture, and makes all without payment except the cart, the Persian wheel, and the sugar-press. The wood is found for him.

The *Lohar* or blacksmith receives the same as the *Badhi*. He makes and mends all iron implements, the iron being found him.

The *Kumhar* or potter gets the same as the *Badhi* when he has to provide earthen vessels for Persian wheels. Otherwise he gets 10 to 20 sers per plough. He provides all the earthen vessels needed by the people or by travellers; and he keeps donkeys and carries grain on them from the threshing floor to the village, and generally brings all grain to the village that is bought elsewhere for seed or food (*bij*, *khaj*) or for weddings or feasts. But he will not carry grain away from the village without payment. In Kaithal *Kumhars* do a good deal of the carrying trade in grain.

The *Chuhra* or sweeper gets half as much as the *Badhi* or often less, and a share of the flesh of dead animals as already noted. He sweeps the houses and village, collects the dung, pats it into cakes and stacks it, works up the manure, helps with the cattle and takes them from village to village. News of a death sent to friends is invariably carried by him. In villages where the women are secluded, he gets a daily cake of bread from each house in addition, or his allowance is the same as that of the *Badhi*. They are the most numerous class of menials after the *Chamars*. There were 31,288 *Chuhras* in the district at the Census of 1881.

The *Jhinwar*, *Kahar*, or bearer gets about the same as the *Chuhra* and receives a daily sheaf of corn at harvest. He brings water to the reapers, and at weddings, and when plastering is being done; and makes all the baskets needed, and the *boria* or matting and *bijna* or fans, generally of date-palm leaves. Where the women are secluded, he also brings water to the house and receives a double allowance. He is the fisherman of the country.

The *Nai* or barber receives a small allowance, and shaves and shampooes, makes tobacco, and attends upon guests. He also is

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Other menials.

the person to go on messages and enjoys large requisites at betrothals and weddings.

The *Dhobi* or washerman receives as much as the *Badhi* in villages where the women do not wash the clothes; but only a small allowance, if any, in others, where he is often not found at all.

The *Teli* or oilman, *Gadaria* or wool-felter, the *Julaha* or weaver, the *Chimpi, alias Lilgar*, or dyer, the *Pumba, Dhunia*, or cotton-scutcher, and the *Sonar* or goldsmith, get no fixed allowance, but are paid by the job; usually either by retaining some portion of the material given them to work up, or by receiving a weight of grain equal to that of the materials.

The *Dhanak* is an inferior sort of *Chuhra*, who will eat a *Chuhra's* leavings (*jhuta*,) while the *Chuhra* will not eat his. They often take the place of *Chuhras*, and frequently weave cloth.

The *Dum* or *Mirasi* are the musicians of all, and the bards of the tribes other than Rajputs and Brahmans, whose Bhats and Jagas seldom reside in the district. The *Dum* is the very lowest of castes. There are generally a few *Jogis*—a low caste of devotees who take the offerings to Shiv and to Guga Pir; and a few Muhammadan *fakirs* who take the offerings to the Muhammadan saints.

Inhabitants of the village generally.

190. The remaining inhabitants of the village are chiefly Brahmans and Banias. The former are the family priests of the people, and even among Musalmans play an important part in weddings. They live by the offerings of their clients. The Banias seldom follow any other calling than that of trade, though a few families cultivate. On *phag*, the day after Holi, they give a ball of *gur*, and on the day of the great *Diwali* a little parched rice or some sweets to the proprietors, in recognition of the subordinate position which they occupy in the village. And on the latter day the *kamins* bring small offerings of articles belonging to the handicraft of each.

All inhabitants of the village have a right to graze a reasonable number of cattle, their own property, on payment of the recognized dues, to collect dry wood for burning, to cut such bushes or grass for thatching or ropes as they need for use in their houses and cattle yards, and to dig mud for bricks, &c., from the village tank. But a small cess for every axe or bill-hook is often taken from non-cultivators where *jangal* is plentiful. Cultivators have ordinarily a right to cut wood needed for agricultural implements and *pala* and grass from the common lands, except in villages where they are very limited in extent and insufficient for the needs of the owners. The manure of the cultivators is used by them in their own fields; but they cannot sell it out of the village. That of the non-cultivators is the joint property of the village; or, if the homestead is divided by wards, of the owners of the ward in which they live. It is kept in great joint stock heaps, and divided

by the owners according to ploughs. The oilmen often pay Re. 1 or Rs. 2 on every press to the village.

Inhabitants of the village generally.

Non-proprietory inhabitants are the owners of the materials of houses which they built; but not, unless by purchase from the village, of the land on which they stand. But they cannot ordinarily be ejected from land they have occupied in or about the homestead, whether for houses, cattle-yards, fuel heaps, or the like, so long as they reside in the village and pay the customary dues, unless the land occupied by them is needed for extension of the homestead proper; in which case they would be ejected, and have similar ground allotted them a little further off.

Watch and ward, *Thikar*.

191. The pay of the village watchmen is fixed by Government and paid by the community equally upon hearths. But the further duties of watch and ward are performed as follows by the whole adult male inhabitants of the village. There is in every village a *thikar* bania. *Thikar* literally means a shard; and, as lots are commonly cast with shards, is now used for any rota or roll by which duties are performed in rotation. The *thikar* bania keeps a roll of all adult males except himself and the headmen and their next heirs, who are exempt; and these males have to keep watch in the village at night in rotation, the *thikar* bania warning each as his turn comes round. In large villages there will be several men on duty at once. The roll is revised generally every 12 years to include men who have grown up in the meantime. This duty is called *thikar* par excellence, though the *thikar* bania keeps other rolls, such as the allotment list of *Chamars* and the like.[1]

Sales and mortgages and extent of civil litigation.

192. Table No. XXXII gives statistics of sales and mortgages of land; Tables Nos. XXXIII and XXXIIIA show the operations of the Registration Department; and Table No. XXXIX the extent of civil litigation. But the statistics of the transfers of land are for all but the latest years very imperfect, and the returns of the past six or seven years are inflated by the inclusion of old transactions brought to light by an improved system of recording mutations. More reliance can be placed on the statistics for Indri and Kaithal collected during the recent settlement. It was found that in Indri 9 per cent. of the total area of the *pargana* had been sold since 1850, and that $3\frac{3}{4}$ per cent. of the remainder was burdened with usufructuary mortgages, the mortgage debt being Rs. 2,04,864, or about $1\frac{1}{4}$ times the revenue of the whole *pargana*. In considering these figures it must be remembered that in deeds of sale the vendor's share of the common land is usually transferred along with his separate holding, but our returns only show the area of the latter. It is only when we consider this, and bear in mind that but one-half of the area of the *pargana* is cultivated, and that the land sold and mortgaged is usually under tillage, that the full significance of the figures becomes apparent. The largest purchaser and mortgagee was the late Nawab of Kunjpura. During

(1) Para. 191 was written originally with reference to Panipat and *pargana* Karnal. I cannot say whether it applies exactly to the rest of the district.

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Sales and mortgages and extent of civil litigations.

the 17 years ending with 1884 he bought 1,499 acres in the villages of his *jagir* and 1,565 acres were mortgaged to him. 48 per cent. of the sales and 59 per cent. of the mortgages from 1851 to 1884 were to money-lenders, including non-cultivating *jagirdars*, like the Nawab. The value of land in Indri is very small, but is apparently slowly increasing. All statistics on the subject are vitiated by the entry of fictitious prices in deeds in order to defeat pre-emption, but the following figures showing average prices, founded on an examination of all documents registered between 1868 and 1884, may be accepted as fairly trustworthy :—

Average prices per acre of land sold in Indri between 1868 *and* 1884.

CIRCLE.	1868—1874.	1875—1879.	1879—1884.	1868—1884.
	Rs.	Rs.	Rs.	Rs.
Khadir	17	18½	20	18
Bangar	11⅓	12	17¾	13
Nardak	8½	6¼	8	7¾
Total ...	12⅓	12½	14¾	13

539 acres of land in the Bangar, most of it in the best part of the Circle, was taken up about 1874 for the new line of the Western Jamna Canal. The price Rs. 15,370, including Rs. 1,995 for wells, was fixed by private bargain with the proprietors. The average was Rs. 28½ per acre.

Fortunately the subject of sales and mortgages is not yet one of much importance in Kaithal. Comparing the revenue of the area transferred with the total revenue of the *tahsil* before re-assessment, we find that 3 per cent. of the land has been sold since last settlement, and that 6 per cent. is under mortgage. The amount of land under mortgage has only doubled since last settlement, and the mortgage debt is only 3½ times as large as it was then. The mortgage debt is over two lakhs. More than half the sales and mortgages are to agriculturists. In comparison with the state of things existing elsewhere, these figures are satisfactory. But the amount of unsecured debt in many villages is large. In a great part of Kaithal the money-lender looks more to the debtor's cattle than to his land. He has no wish to make a risky investment by taking the latter on mortgage and becoming responsible for the payment of the revenue.

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Leading Families and Chaudhries.

Sales and mortgages and extent of civil litigation.

The figures for the different circles are summarised below :—

CIRCLE.	Per cent. of land sold.	Average price per acre.	Per cent. of land mortgaged.	Mortgage debt per acre.
		Rs.		Rs.
Nardak	2	8	3½	7
Bangar Kaithal	2	9	5	7
Do. Pehowa	4	9	3	8
Andarwar	½	21	13	20
Naili Kaithal	4	19	8½	17
Do. Pehowa	8	12	7	17
Powadh	2	20	5	21

The amount of the transfers is largest in the Naili, which is the only unprosperous part of the *tahsil.*

The apparent high proportion of mortgage in the small Andarwar Circle need not cause any anxiety. Very many of the mortgages seem to be old ones existing at last Settlement, and still unredeemed. The revenue of the land under mortgage at last Settlement was Rs. 1,827, that of the land now under mortgage is Rs. 2,054.

SECTION F.—LEADING FAMILIES AND CHAUDHRIS.

Principal families.

193. The principal families in the Karnal district are—the Kunjpura family, the Mandals of Karnal, the family of the Bhais of Arnauli and Siddhuwal, the Sardars of Shamgarh, Sikri, Dhanaura, and Labkari, the Panipat families, and the Skinners.

The Nawabs of Kunjpura.

194. The founder of the Kunjpura family was a Pathan named Nijabat Khan. His ancestor came from Kandahar, and

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Leading Families and Chaudhris.

The Nawabs of Kunjpura.

founded a village in Sindh called Gurgusht,[1] which he held in *jagir*. Having left Sindh in consequence of family quarrels, Nijabat Khan with his follower Mahmud Khan came to seek his fortune in Hindustan. He entered the service of Munna Khan, Wazir of Lahore, and in two years was a commander of horse, when he came down to Wazir Khwaja Nassiruddin, of Radaur. Here he became a *Risaldar*, sent for his family, and fixed his head-quarters at Tiraori; one of the *zamindars* of the villages of Bidauli who had quarrelled with his relations, begged the assistance of his soldiers and gave him the *biswadari* of Kunjpura, which was then a swamp or nearly so. Nijabat Khan got some leases of the surrounding villages from the authorities, and gave them to Mahmud Khan, who wanted to build at Kunjpura. The Rajputs destroyed all he did. Nijabat Khan brought his troops over from Tiraori and settled them at Kunjpura, and from that time a deadly enmity sprung up between the Rajputs and Pathans. About 1729 A. D. a masonry fort was built at Kunjpura after a hard fight. The fort was first called Nijabatnagar. The cruelty of the Afghans having reached the ears of the *Chakladar* of Saharanpur he sent for Nijabat Khan; he refused to go, a force was sent, and the *Chakladar* Izzat Khan was killed by one of Nijabat Khan's relations. The power of the Afghans increased, and Nijabat Khan made himself master of other lands. The Dehli Emperor hearing of the death of his *Chakladar*, sent for Nijabat Khan through Mulraj, Governor of Panipat, who enticed him to Panipat, and sent him a prisoner to Dehli, where he remained for a year. Khwaja Jafir was sent to Kunjpura but was put to death by the servants of Nijabat Khan. Nawab Bangash of Farrukhabad interceded for Nijabat Khan, and he was released; and his estate Nijabatnagar, and other villages in number as noted in the margin, were granted him in *jagir* on condition of his restraining the Jats and Rajputs, who were taking advantage of the weak state of the empire to give trouble and commit excesses.

Pargana.	No. of villages.
Bidauli ...	5, including Nijabatnagar or Kunjpura
Karnal ...	6
Thanesar ...	20
Shahabad ...	24
Banu ...	3
Azimabad ...	45
Indri ...	45
Unknown ...	2
Total ...	150, valued at 5 or 6 *lakhs* of rupees.[2]

On the incursion of Nadir Shah, Nijabat Khan supplied him with provisions and tendered his obeisance; he became a *Risaldar*

(1) "The Kunjpurias are credited in the earlier Government records as having come from 'Gurgusht in the Sinde country.' By Sinde is, probably, intended in this case the country of the Upper Indus, for the large village of Gurgushti in the Rawalpindi district is close to the Indus or Sindh river in the Chach plain north-east of Attock; and the Pathans of Gurgushti are especially given to claiming kinship with the Kunjpura chiefs. Thus in 1886, on the death of the late Nawab Muhammad Ali Khan, a Gurgushti deputation duly appeared at Karnal to offer condolences, and to take back with them the presents such attention was bound to secure."—*Massy's Panjab Chiefs.*

(2) This valuation is doubtleses normously exaggerated.

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Leading Families and Chaudhris.

The Nawab of Kunjpura.

of 1,000 *sowars*. The Mahratta army under Jhanku Bhao plundered Kunjpura, when Nijabat Khan was wounded, taken prisoner, and died, some accounts say was slain, aged 75, at Panipat, in A. D. 1758. Ahmad Shah repulsed the Mahrattas in A. D. 1758, and established Daler Khan, Nijabat Khan's eldest son, at Kunjpura, having first enriched him with spoils from the Mahrattas. Daler Khan enjoyed his possession for 15 years, and died in 1773 A. D. He was followed by his son Gulsher Khan. Daler Khan and Gulsher Khan had a hard struggle to maintain their position against the invading Sikhs, and some of the family possessions had to be surrendered. In some cases part of an estate was kept while the remainder was given up; and the revenues of Tiraori, Singoha, and Garhi Gujaran, Gorgarh, Janesaron, and Bahlolpur are still shared between the Nawab and Sikh *jagirdars*. Gulsher Khan died in 1803 and was succeeded by his eldest son Rahmat Khan; several villages were given to his brother Muhaiuddin Khan in maintenance, but on the death of Muhaiuddin Khan, the number of villages was reduced to one, the fine estate of Biana, and some land in Kunjpura, which were afterwards held by his son Muhammad Yar Khan. On the death of the latter Biana reverted to the Nawab.

Rahmat Khan died in 1822, and was succeeded by his eldest son, Bahadur Jang Khan, who died childless 7 years after, and was succeeded by his brother Ghulam Ali Khan. The latter died in 1849, when his son Muhammad Ali Khan became Nawab. On his death in 1886 his eldest surviving son, Ibrahim Ali Khan, a boy of six or seven years of age, succeeded. He is now being educated at the Aitchison College, and the estate is under the charge of the Court of Wards. In 1806, during his father's lifetime, Bahadur Jang Khan was awarded a life *jagir* of seven villages in *pargana* Karnal by Lord Lake. This grant was valued at Rs. 2,900, and lapsed on Bahadur Jang Khan's death. In 1811 Nawab Rahmat Khan's *jagir* was valued at Rs. 72,000. The present value of the assignment after deducting service commutation is Rs. 30,039, but this includes a small *jagir* enjoyed by a minor branch of the family. The large estate of Kunjpura in the Indri Khadir and lands in Muzaffarnagar and Saharanpur were inherited by the late Nawab and he acquired a considerable area of land in *parganas* Indri and Karnal by sale and mortgage. The proprietory holdings comprise the whole of twelve and portions of forty-six villages. These yield a rental of Rs. 23,000 while the miscellaneous income from house rents, &c., is about Rs. 14,000.

For the last 50 years the family has been distracted by internal dissensions, the younger members being at constant feud with the Nawab for the time being about the amounts assigned to them as maintenance.[1]

(1) For a fuller account of the family and for its genealogical tree see Massy's *Panjab Chiefs*, from the proofsheets of which part of the information given above has been derived.

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Leading Families and Chaudhris.

The Mandal family.

195. The Mandals, or as they are sometimes called Marhals, are said to be a family of Mula Jats, or Jats who have been converted to Islam. They generally calls themselves Pathans, and they affect the Pathan affix of Khan to their names. They also sometimes assert that they are of Rajput descent, and the poor Musalman Rajputs occasionally marry their daughters to them; but under no circumstances would a Rajput marry a Mandal woman, and the latter marry only within the family, which being very limited in numbers, many of the girls remain unmarried. There is no doubt that they are of Jat origin, and came originally from Samana in Patiala. The family tree is given below so far as regards the Karnal family, daughters are not shown in it:—

- Ghulam Muhammad.
  - Jalal Khan.
    - Sher-ud-din original grantee, (childless).
    - Muhamdi Khan. *Branch I.*
    - Rahim Baksh.
      - Muhammad Ishak. *Branch II.*
  - Muhai-ud-din Khan.
    - Ghairat Ali. *Branch III.*

Branch I, Jagir.

- Muhamdi Khan.
  - Nawab Ahmad Ali Khan, (died 1867).
    - Nawab Azmat Ali Khan, (born 1835).
    - Rustam Ali Khan, (born 1863).
    - Umr Daraz Khan, (born 1865).

Branch II, Rs. 5,000.

- Muhammad Ishak.
  - Amir Ali.
    - Muhammad Ali, (died 1879.)
    - Ghulam Rasul.[1]
      - Azam Ali Khan.
  - Sultan Din.
  - Nasir Ali.
    - Rahm Ali.
      - Mehr Ilahi.
        - Fatteh Muhammad.
      - Karm Ilahi.
  - Wazir Ali
    - Shamsher Ali

Branch III.

- Ghairat Ali.
  - Ghulam Sharaf.
    - Kutb-ud-din.
      - Saadat Ali.
    - Nijabat Ali.
    - Kamr-ud-din.
    - Akbar Khan.

(1) According to table in Massy's *Panjab Chiefs* Ghulam Rasul was son of Sultan Din.

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In 1780 A.D. Nawab Majid-ud-daula granted to Nawab Sher-ud-din Khan the *mahals* of Muzaffarnagar, Shoran, and Chitrawal in the Muzaffarnagar district, on condition of his furnishing for Government service 200 horsemen fully equipped; and, on the death of the grantee in 1789, the grant was continued on the same terms to his brother Muhamdi Khan by Daulat Rao Scindia. In 1806 this Muhamdi Khan, with his nephew Muhammad Ishak and his cousin Ghairat Ali, was in possession of these estates; and, in accordance with the policy of Lord Cornwallis (para. 57), they were induced to consent to an exchange of their possessions in the Doab for an equivalent tract west of the Jamna. They accepted the proposal with reluctance; and it is said that the estimate that they submitted of the yearly rental of the Muzaffarnagar estates, which they valued at Rs. 40,000, was much below the truth, the Collector of Saharanpur estimating the real income at Rs. 65,000. The 63 villages in *pargana* Karnal, which were then assessed to Government revenue, were estimated to yield Rs. 48,000 yearly income; and in order to induce them to accept the exchange the more readily, it was arranged that they should receive so much of *pargana* Karnal as had not been already granted to others, comprising very many estates not included in the above estimate, and should relinquish the Muzaffarnagar service grant, Muhamdi Khan retaining, however, a smaller separate *jagir* in that district, which had been assigned to him personally.

The transfer was effected by a grant signed by Lord Lake and dated 24th March 1806, which assigned to them in *jagir* the whole of the *pargana* with its fortress and town, with the exception of the *sayer*, *mafi*, *jagir* villages, *yomia*, *punarth*, &c.

The Mandals accepted the grant, but begged that some provision might be made for their children; and proposed that the *pargana* should be continued to their heirs on a fixed quit rent. The Supreme Government which, as before remarked, was only too anxious to get rid of lands west of the Jamna, and wished to make what was felt on both sides to be really a compulsory exchange acceptable, then added a supplementary grant, also signed by Lord Lake, and dated 9th April 1806, by which the grant was continued to their heirs "in *istamrar* on "condition of paying for the same an annual rent of Rs. 15,000."

In pursuance of these grants, the three assignees were put in possession of the *pargana* on the 15th July 1806. The fort was shortly afterwards resumed on military grounds, and Rs. 4,000 compensation paid for it. The Mandals immediately began to quarrel with each other, the chief matter of dispute being Muhamdi Khan's claim to be considered the head of the house. On the 16th July 1807 they divided the villages among

(1) Translations of both these *sanads* will be found in paras. 519 and 520 of Mr. Ibbetson's Settlement Report.

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themselves by a deed attested by the Resident at Dehli, according to the following estimated annual value :—

	Rs.
Muhamdi Khan	15,000
Ghairat Ali	13,000
Ishak Khan	12,000

the city of Karnal and one or two other estates being still held joint.

Neither of the original grants had given any detail of the villages granted; but a list of the 63 villages assessed to revenue and estimated to yield the Rs. 48,000 was on the file; and in 1816 the Principal Assistant attached all the villages not included in this list, which constituted a very large proportion of the whole *pargana*. The Resident demurred, but held that the heirs (and one of the original grantees had just died) could certainly only claim the specified villages. The matter was referred to the Supreme Government, which in its letter of 15th March 1817 declared that the records at headquarters clearly showed that "the intention of Lord Lake, "which was confirmed by the Governor-General in Council, was "that the Mandal chiefs should hold the *pargana* of Karnal "in *jagir*, and their descendants in *istamrar* on the terms of "the second grant." The voluminous correspondence which ensued on the subject gives very full particulars of the history of the grant; and the papers forwarded with Supreme Government of India letter of 15th March 1817 to the Dehli Resident, which forms a part of it, show clearly that by "descendants" was meant "descendants in perpetuity."

Minor assignments of revenue within the Mandal holding.

196. In 1842 it was found that the Mandals were enjoying the quit rent of the two villages of Goli and Waisri, which were assigned at a fixed demand to a *Bairagi* monastery in the former, and its branch in the latter village. Waisri was many miles from *pargana* Karnal; but Government, N. W. P., in its No. 1333 of 29th July 1852, directed that they should continue in enjoyment. In 1852 a question was raised as to who should enjoy the revenue assessed upon the subordinate revenue-free tenures which had been expressly excluded from the grant, in the event of their resumption. The Government, N. W. P., in its No. 2636 of 26th June 1852, ruled that, though the Mandals were not entitled as of right to such revenue, which properly belonged to Government, yet the revenue assessed upon resumed revenue-free plots of less than 50 *bigahs* might be relinquished in favour of the Mandals; that entire villages, when resumed, should invariably lapse to Government; and that intermediate tenures should, in the event of resumption, be specially reported for orders in each case. Half the villages of Bahlolpur and Dingar Mazra have since been resumed, and have reverted to Government; while

a resumed holding of more than 50 *bigahs* was reported, and the assessed revenue, which amounted to Rs. 14 only, was, under the orders of Government, made over to the Mandals.

Conversion of part of the *Istamrar* into *jagir*.

197. In the mutiny Nawab Ahmad Ali Khan did admirable service, and the Government of India, in its No. 1341 of 24th March 1858, to the address of the Chief Commissioner, Panjab, remitted the quit rent of Rs. 5,000 payable by him in favour of "him and the heirs males of his body lawfully "begotten in perpetuity," thus converting his *istamrari* tenure into a *jagir*. But the actual words of the grant would seem to be to "him and his male issue from generation to generation," and it is not clear that there was any limitation as to legitimacy. At any rate the two brothers of the present Nawab Azmat Ali have been declared to be lawfully begotten.

Primogeniture among the Mandals.

198. In 1860 the Government of India affirmed the advisability of instituting primogeniture in tenures of this nature: the Panjab Government inquired the wishes of Nawab Ahmad Ali (see Government Circular No. 2 of 25th May 1860); and it has been held by the district court in Azmat Ali's case of 1880 that Ahmad Ali executed an agreement to that effect, which had no binding value.

Record of Mandal custom.

199. No sooner had the Mandal family settled in their new home than they began to quarrel among themselves, and their descendants have followed their example with ardour. The family was too new and too limited, and their new style of too recent origin, for any custom worthy of the name to have grown up; and each was anxious to make for all the rules which suited his particular predilections or interests. By 1845 these disputes had risen to such a pitch of acerbity that they reached the ears of Government. For the next 10 years the Collector, the Commissioner, and even the Lieutenant-Governor himself, vainly endeavoured to induce them to come to some understanding, and to agree to some set of rules which should regulate the future interests of individual members of the family. In 1850 a proposal was before the Supreme Government for legislation which should make such family arrangements binding; and the paper to be drawn up was at first intended to be brought under the proposed law. Later on, nothing further was contemplated than to obtain an agreement to which the courts would probably attach more or less weight, and which would, at any rate, be acted upon privately.

In 1848 arbitration was resorted to; in 1850 a code was drawn up; but in neither case was the consent of all the Mandals secured. In the minute laying down lines for the revision of assessment of 1852, the Lieutenant-Governor urged further efforts to induce them to agree upon a code of rules, if they refused "they must be left to fight their own battles, and ruin

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themselves." In 1852 and again in 1855, further drafts were prepared; but again objections, more or less frivolous, were raised. To the last code only one objection was raised and that only by one member of the family. Nevertheless, apparently wearied out by the futility of all attempts to obtain complete agreement, Government abandoned the attempt to frame any administration paper for the Mandals. In Government No. 3826 of 23rd December 1855, laying down the lines on which the revision of 1856 was to be conducted, the Lieutenant-Governor wrote:—

"It is not in the power of Government to compose these differences and to establish definite rules by any arrangement prescribed by means of its own authority. The *istamrari* tenure is subject in all respects to the ordinary operation of the laws and courts; and the hereditary grant, by the Sanad of 9th April 1806, is generally to the 'heirs' of the three first grantees. The claims of all persons who may be entitled to any portion in the inheritance must be received and determined by the court. The proposal to form a binding *dastur-ul-'aml* under the superintendence of the Government officers can therefore no longer be persisted in, and the subject must be left to the voluntary agreement of the parties themselves, or to the courts for judicial decision."

This was written, of course, long before the Pensions Act of 1871; but the principle here affirmed has been followed by the Panjab authorities in their action in the case of Azmat Ali Khan (See Panjab Government No. 570 of 4th May 1878). Appendix A to Mr. Ibbetson's Settlement Report contains a complete abstract of the various customs of the family as fixed by the arbitrators in 1848, and as agreed to or dissented from in the four codes dated 1st April 1850, 30th October 1850, December 1852, and 24th July 1855. A discussion of the nature and incidents of the Mandal tenure will be found on pages 212—215 of Mr. Ibbetson's Settlement Report.

Present condition of the Mandals.

200. The constant and bitter disputes which have been rife among the Mandals ever since their first settlement in Karnal, have had the effect which might have been expected upon their position as a family. Other causes, too, have contributed to their decay. As each generation increased the number of the family, the sons, all sharing in the inheritance of the father, not only were relieved from the necessity of earning their livelihood, but also felt it incumbent upon them to keep up as far as possible the style which was traditional in the family on a reduced income which was quite insufficient for the purpose. Being almost without exception uneducated, they fell wholly into the hands of an unscrupulous band of rapacious stewards, who found their interest in introducing them to money-lenders as unscrupulous as themselves. The decadence of the family began early. In 1817 Sir Charles Metcalfe wrote:—

"They have suffered much since they were established in Karnal; and the period of their transfer from the Doab was the commencement of the decline of their prosperity. Their respectability,

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in all external appearances, has been dwindling away before my eyes in the course of the last ten years. It may be said with justice that their decline is in some measure owing to their own mismanagement, as they received an extensive district capable of great improvement. It must, however, be admitted that something unfavourable in the change must also have operated; otherwise why did not their mismanagement ruin them in the Doab, where I remember meeting them in 1805, equipped in a style of considerable pomp and splendour? Their present appearance is very different: and their tone to me since 1806 has invariably been that of complaint."

Of course the position of a *jagirdar* was very different under Native and British rule; and this difference would have been felt even if the Mandals had remained in the Doab. On the point of mere income, they have little to complain of. The revenue of the assignment at different periods is shown below:—

Year.	Assessed revenue.	Owner's rates.	Total revenue.	Quit rent.	Net revenue.
	Rs.	Rs.	Rs.	Rs.	Rs.
1806, estimate ...	40,000	...	40,000	15,000	25,000
1847, settlement ...	1,04,966	...	1,04,966	15,000	89,966
1852, revision ...	1,00,901	...	1,00,901	15,000	85,901
1856, do. ...	80,957	...	80,957	15,000	65,957
1876, current demand ...	80,058	...	80,058	10,000	70,058
1880, revision ...	60,670	14,595	75,265	10,000	65,265

The assessments of 1847 and 1852 were never really realised, so that the reduction effected since then is partly nominal. Even excluding from account the remission of Rs. 5,000 quit rent in 1858 on account of special services, the net revenue is still Rs. 60,265 against Rs. 25,000 estimated in 1806. And the Doab was so comparatively fully developed in 1806, and the limitations of the Government demand which have been introduced since have been so considerable, that it is highly improbable that the revenue of their old holdings will now amount to so much as that of their present estate.

The present Mandals are by no means favourable specimens of Indian gentry. Ahmad Ali was a thorough gentleman, and a fine, intelligent, and active man. Muhammad Ali, who is just dead, retained much of the old style. But Azmat Ali, the present Nawab—for only the head of the family has a right to the title, though the other members are commonly called so—has been unfortunate, as all his father's care was spent on his elder brother, who died before him; and Azmat Ali is uneducated and unintelligent, though thoroughly amiable and respectable. His legitimatised brothers have gained a decree for two-thirds of his estates and four *lakhs* of mesne profits; and the result must be disastrous. Of the other members of the family, too many are ignorant, dissolute, unintelligent, and wantonly extravagant, and their estates are heavily encumbered

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with debt. Even now the adoption of primogeniture would go far towards saving them; but in default of this, it is to be feared that they must inevitably degenerate into a horde of petty assignees, such as we have in Panipat.

The present state of the grant is shown below.

The revenue is that of the whole estate, inclusive of subordinate assignments, *inams*, and the like.

No. of family.	No. of holder.	Name of Mandal holder.	No. of villages.	Assessed revenue.	Owner's rates.	Total revenue.	Quit rent.	Shares in joint property.
				Rs.	Rs.	Rs.	Rs.	Rs.
I.	1 2 3	Nawab Azmat Ali Khan, *with his two brothers* Rustam Ali Khan, Umr Daraz Khan *in equal shares*	25	19,717	4,543	24,260	...	4
II.	4	Azam Ali Khan ...	13	9,867	1,520	18,387	2,500	2
	5 6	Fatteh Muhammad ... Karm Ilahi Khan ...	8	5,096	1,435	6,531	1,250	1
	7	Shamsher Ali Khan ...	10	6,971	735	7,706	1,250	1
		Total of family ...	31	21,934	3,690	25,624	5,000	4
III	8	Saadat Ali Khan ...	7	5,671	1,906	7,577	1,250	1
	9	Karm-ud-din Khan ...	8	3,681	2,111	5,792	1,250	1
	10	Nijabat Ali Khan ...	7½	5,231	735	5.966	1,250	1
	11	Akbar Khan ...	7	4,436	1,610	6,046	1,250	1
		Total of family ...	30½	19,019	6,362	25,381	5,000	4
		Total of estate ...	93¼[1]	60,670	14,595	75,265	10,000	12

The Bhais of Arnauli and Siddhuwal.

201. An account of the Kaithal family, the present representatives of which are Bhai Jasmer Singh of Arnauli and his cousin Bhai Anokh Singh of Siddhuwal, has been given in para. 62. The net revenue of their *jagirs*, after deducting commutation, is:—

	Rs.
Arnauli	13,712
Siddhuwal, including revenue of Budlada villages recently transferred to Hissar	19,000

(1) 6 estates are shared equally between the three families. In addition Nos. 4, 5 and 6 have one estate jointly, No. 4 having one-half, and No. 5 and 6 one-quarter each.

Both the Bhais have small *jagirs* in Ambala and Ferozepore, and Arnauli has a *jagir* of the net value of about Rs. 1,600 in Ludhiana.

The Sardars of Shamgarh.

202. The Shamgarh family derives its origin from one Kirpal Singh resident of village Gudha in *pargana* Bhatinda. When a boy of 10 years of age, he came to Ladwa with his sister Mai Karmi, who was wedded to Sahib Singh, brother of Gurdit Singh, Raja of Ladwa. Shamgarh was bestowed upon him in reward for the services rendered to the confederacy of Sikhs in the conquest. This estate was in his direct possession when General Lake arrived at Karnal in the year A. D. 1804. Kirpal Singh died in 1830, leaving as his heirs Deva Singh and Fatteh Singh, who subsequently divided the estate. Fatteh Singh's share, known as the Saga *jagir*, is now held by his grandson, Sampuran Singh, a child of five years of age. The rest of the original *jagir*, which retains the name of Shamgarh, is in the possession of Ram Singh, son of Deva Singh. He is a well behaved man, but he has unfortunately run into debt, and does not live on good terms with the *zamindars*. He and his brother Kanh Singh who died childless did good service in the mutiny, and got a remission of the commutation for one year.

The Sardars of Sikri.

203. The present Sardar of Sikri is Tilok Singh, a young man of 23 years of age. He succeeded in 1882 on his father's death, who left the estate in a very embarrassed condition. He is the descendant of Bhag Singh, a *kardar* of the Raja of Ladwa.

The Dhanaura and Labkari Sardars.

204. The Sardars of Dhanaura and Labkari are descendants of Sada Singh, an officer of the Maharaja of Patiala, who was put in possession of Dhanaura, when the Maharaja wrested it from the Nawab of Kunjpura. Sahib Singh was in possession of the whole estate, which consists of nine villages, seven in Karnal and two in Ambala, in 1809, when the Cis-Satlej chiefs were taken under the protection of the British Government. He died in 1842. After his death a complete division of the estate was made between his son, Natha Singh, and grandson, Amr Singh. The villages assigned to the latter were henceforth known as the Labkari *jagir*. Natha Singh and Amr Singh both did good service in the mutiny. The latter died in 1887. Sardar Natha Singh's share is now in possession of two of his sons and three of his grandsons.

List of *jagirs* of *pargana* Indri and *tahsil* Kaithal.

205. The net income of the *jagirs* of the Indri *pargana* and Kaithal *tahsil*, after deducting commutation, is shown in the annexed statement. The term major *jagir* is meant to indicate that the assignment falls under the description of "large estates" as defined in a letter No. 207, dated 21st January, 1852, from the Secretary to the Board of Administration to the Commissioner, Cis-Satlej States, (see Panjab Revenue Circular No. 37, paras. 75 to 77).

List of *jagirs* of *pargana* Indri and *tahsil* Kaithal.

Class.	No.	Name of jagir.	Net Income.	Rate of commutation.
			Rs.	
Major jagirs	1	Kunjpura	30,039[1]	$\frac{1}{16}$th.
	2	Arnauli	13,712	Do.
	3	Siddhuwal	8,021	Do.
	4	Dhanaura	2,706	Do.
	5	Labkari	2,144	Do.
	6	Shamgarh	3,016	$\frac{1}{8}$th.
	7	Saga	1,080	Do.
	8	Sikri	2,636	Do.
	9	Barthal	1,530	Do.
	10	Anjanthali	263	Do.
	11	Sidpur	297	Do.
	12	Aihbla	438	Do.
Pattidari jagirs	13	Patti Jameraian—Zail Andhgarh,	123	$\frac{1}{8}$th.
	14	" " Tihai ...	732	Do.
	15	" " Chhapar...	2,108	Do.
	16	" " Khanpur...	1,273	Do.
	17	" " Dhumsi ...	1,537	Do.
	18	" " Gudha ...	2,648	Do.
	19	" " Gorgarh...	739	Do.
	20	" " Ghisarpari,	60	Do.
	21	Patti Haibatpur	747	Do.
	22	Khera	1,477	Do.
	23	Makhali	455	Do.
	24	Kheri Churni	3,272	Do.
	25	Sadikpur	75	Do.
	26	Parwala	279	Do.
	27	Sambhi	494	Do.
	28	Rawahar	180	$\frac{1}{2}$.
	29	Bari Jaurasi	707	$\frac{1}{3}$rd.
	30	Paharpur	1,169	*Nil.*
	31	Malakpur	242	*Nil.*
Jagirs in perpetuity...	32	Ujana	230	*Nil.*
Jagirs for life or lives or for limited periods ...	33	Jhinwarheri	669	*Nil.*
	34	Danipur—Khudadadpur ...	310	Rs. 125
	35	Ahun	110	$\frac{1}{3}$rd.
	36	Achanpur	125	*Nil.*
		Total	85,643	...

All these *jagirs* are held by Sikhs, excepts Nos. 1, 32, 34, and 36. In all the *pattidari jagirs* except No. 31 the assignees have the status of 1809 (Panjab Revenue Circular 37, para. 69).

The Revenues of the villages of Ramthali, Atela, Ludana Baba, and Dhundarheri in Kaithal have been released in perpetuity in favour of monasteries, and that of Piluni in favour of certain Brahmans of Ambala and Ferozepore.

(1) Includes a subordinate *jagir* of 3½ villages held by the descendants of Nizam Ali Khan. On this *jagir* the rate of commutation charged is $\frac{1}{8}$th. $\frac{1}{8}$th is also realized in Biana, which reverted to the Nawab on the death of Muhammad Yar Khan (para. 194), and in three estates, which were formerly included in *tahsil* Panipat.

(2) In No. 30 this status has not been given in express terms, but, as the *jagir* is released in perpetuity to the descendants of a lady who died in 1809, the effect is the same.

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The Skinner family.

206. When the tract was first brought under settlement, the Colonel James Skinner, who made such a name for himself as a leader of irregular horse in the earlier years of this century, and whose biography written by Mr. Fraser forms such an interesting sketch of those times, obtained in farm a considerable number of villages, for the most part small ones, which had been more or less abandoned by the communities who owned them. He also took up the engagements for several of the larger villages, the proprietors of which had refused to accept the assessment. His management was vigorous and successful, he expended a great deal of capital in extending cultivation and introducing irrigation, his careful personal supervision ensured the success of the undertaking, and the Government officials of the time constantly bore hearty testimony to his qualities as a landlord. The people, who know him as Sikandar, speak no less admiringly of him. Their common expression with regard to him is "*wuh to badshah tha*"—"Ah! *he* was a king." He was a strict landlord, insisted upon receiving his dues, and made his speculation exceedingly profitable; he ruled his villages with a strong hand, and stories are still current of the evil fate that befell malcontents who complained against him. But he understood and liked the people, and treated them as they would be treated; he was personally known to all of them; he managed them through their own elders and made much of the headmen; and he knew how far a little reasonable liberality goes, and by distribution of turbans, a supply of sweetmeats for all who came to him on business, by keeping his ear open to all grievances, and giving substantial ready relief in really bad cases, he won their hearts and their confidence.

Acquisition of villages in proprietory right by the Skinners.

207. At the regular Settlement many of the large villages which he then held agreed that his farm should be continued, and refused to engage themselves. Most of the small villages, which had come to him in a very low state, were then fully occupied by the original owners, such of them as had abandoned their homes having returned on matters improving. Mr. Fraser, the first Settlement Officer, offered engagements for these villages to the resident owners; but the Commissioner quoted a ruling of the Sadr Board to the following effect:—

"The reclaiming of waste land had always been considered by natural law and right to confer the best title to property. In this country reclaiming waste land by the permission of the Government has always, as far as the Board is aware, been taken as the best title. Under this view nothing can be more erroneous than the course which, during a certain interval, appears to have been followed in Dehli of taking away lands from those who had reclaimed, peopled, and continued to occupy them, and giving them to those who came forward when they found a valuable property created to their hands, on the ground of absolete traditions of national or ancestral possession. When land has been deserted, left waste, and returned to its natural state, and no one is found on the spot to maintain a claim to property or possession, it is the

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undoubted right of Government, whose duty it is to promote the perfect cultivation of its territory, to authorise any person who is willing to occupy the waste; and such occupant ought, both in practice and policy, to be considered the owner."

Acquisition of villages in proprietory right by the Skinners.

This ruling referred to lands in Hariana, which had been "settled and reclaimed by emigrants from foreign parts;" and the villages here in question had been settled and reclaimed by the original owners, with the assistance of Colonel Skinner. The settlement officer, therefore, vigorously protested against the application of the rule; but the Commissioner directed that the engagement for the revenue should be made with Colonel Skinner, leaving the owners' column in the records blank. His merits as a landlord were well-known, and in only two cases was any effort made to dispute these orders. The settlement of all these villages was made with Colonel Skinner at specially reduced rates, in consideration of the capital he had expended upon them. Colonel Skinner died in December 1841; and his eldest son, Major James Skinner, succeeded to the management of the family estate. The management would appear to have changed for the worse; for in 1853 the Collector reported that every single village complained of it. A few years later Major Skinner died, and was succeeded in the control by Mr. Alexander Skinner. The villages attempted to have their farms cancelled on this occasion, but were unsuccessful. In the recent Settlement all the farmed villages have taken up their own engagements.

In 1851 the Government, N. W. P., issued a notification No. 4158 of 28th November (see Panjab Revenue Circular No. 8 of 11th February 1852), directing that in all villages in which no owners had been recorded at Settlement (technically called *khana khali* villages) an investigation should be made, and where no very clear title was shown by other parties, the farmer with whom the settlement had been made should be declared owner and recorded as such, other claimants being referred to the civil courts. An investigation was accordingly made, and the Skinner family declared owners of all the villages held in farm by them which fell under the above description. Some few of the villages sued for proprietory rights, but failed on the ground of long adverse possession on the part of the Skinners. There is not the least doubt whatever that in almost all these villages the original proprietors were then residing and cultivating their ancestral fields; and it is almost certain that the villages were not wholly abandoned when they first came into Colonel Skinner's hands. The owners no doubt returned gradually, as they did in all the small villages of the tract; and very probably some of them were induced so to return by Colonel Skinner; and it is certain that he spent much money upon the villages, and greatly improved their condition. During the recent settlement the old owners who still reside in the villages sued for rights of occupancy; and without any excep-

tion obtained them on the ground that they had been dispossessed of their proprietory right, and had cultivated continuously since dispossession.

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Leading Families and Chaudhris.

Panipat families.

208. The city of Panipat, considered as a landed estate, is divided into four *tarafs* or separate estates held by the Rajputs, the Ansaris, the Makhdumzadas, and the Afghans. These families are of sufficient importance to demand a brief notice of each. The Panipat Ansaris, or helpers of the prophet, are descended from Khwaja Abdullah Pir of Herat, one of whose descendants, called Khwaja Malk Ali, was summoned from Herat by Sultan Ghias-ud-din Balban on account of his repute for learning, and settled at Panipat. They intermarry only with Ansaris, Pirzadas, and the Saiyids of Barsat and Sunpat. Many celebrated men have sprung from this family. Among the most celebrated are—

(1). Khwaja Abdur Rizak, Bakhshi in Alamgir's reign.

(2). Khwaja Muayin-ud-daula Dilerdil Khan, and his brother Zakaria Khan, sons of (1) and respectively Viceroy of Kabul and Governor of Lahore at the time of Nadir Shah's invasion.

(3). Lutfullah Khan Sadik Shams-ud-daula Tahawur Jang, also son of (1), tutor to Azim Shah, warder of the Fort at Dehli during Nadir Shah's invasion, and Wazir to Bahadur Shah, Farrukhsir, and Muhammad Shah.

(4). Shakrullah Sher Afgan Khan Izzat-ud-daula, also son of (1), *subadar* of Tatta.

(5). Muhammad Ali Khan, grandson of (3), and author of the Tarikh-i-Muzaffari and the Bahrulmawwaj.

(6). Abdul Mulk, a celebrated saint described in the Ain Akbari.

The Makhdumzadas or Muhajarin Arabs are descendants of Abdur Rahman of Ghazrun, who came to India with Mahmud of Ghazni, settled at Panipat, and had a descendant, Shekh Jalal-ud-din Kahi-i-aulia Makhdum, from whom the family is sprung. His shrine has a *nim* tree, the leaves of which are a sovereign remedy against *bhuts*; and no *bhut* ever attacks a Makhdumzada. They intermarry with Ansaris and Makhdumzadas only. From this family are sprung—

(1). Nawab Mukarrab Khan, Governor of Gujrat in Jahangir's time.

(2). Shekh Hasn, grand-father, and Shekh Bina, father of (1), very celebrated surgeons.

The Afghans, or Sherwani Pathans, descended from Malak Sherwan Khan, who is said to have come to India with Mahmud Ghaznavi. They marry only Pathans.

The Tunwar Rajput family said to be descended from Raja Anand Pal of Dehli. The hereditary *chaudhri*-ship of *pargana* Panipat belongs to this family.

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Leading Families and Chaudhris.

Chaudhris.

209. The two hereditary *chaudhris* of *parganas* Karnal and Panipat, are Abdul Karim, Chauhan of Jundla, and Riasat Ali, Tunwar of Panipat, both Rajputs. There was a Jat *chaudhri* of Bala for the small group of villages belonging to Jindh, but the office dated only from recent times. Both these *chaudhris* have been made *zaildars* of their respective *zails*. Under the Emperors, the Jundla *chaudhri* always enjoyed a considerable assignment of revenue, as shown by grants now in the possession of the family. Till the transfer of the Karnal *pargana* to the Mandals, he used to receive an allowance of 7 per cent. on the revenue of the *pargana* as *nankar*. In 1820 this was commuted for an annual payment of Rs. 300 which the Mandal assignees continued to pay till 1850, when they objected to continuing the allowance on the ground that a Regular Settlement had been made. The objection was accepted, and the payment ceased. The chief Chauhan Rajput family of Rambha enjoyed a small revenue grant under the Emperors. One member of the family is now *zaildar* of the Rambha circle.

CHAPTER IV.

PRODUCTION AND DISTRIBUTION.

SECTION A.—AGRICULTURE AND ARBORICULTURE.

Chapter IV, A.

Agriculture and Arboriculture.

General statistics of agriculture.

210. Table No. XIV gives general figures for cultivation and irrigation, and for Government waste land; while the rainfall is shown in Tables Nos. III, IIIA, and IIIB. Table No. XVII shows statistics of Government estates. Table No. XX gives the areas under the principal staples. Statistics of live-stock will be found in Table No. XXII. Further statistics are given under their various headings.

The seasons. Agricultural calendar.

211. The total annual fall of rain and the manner in which it is distributed throughout the year are shown in Tables Nos. III, IIIA, and IIIB. The agricultural or *fasli* year begins, according to the almanac, at the middle of Chait; but in practice the agricultural year begins with the day after *Dasehra*, or the 11th of the second half of Jeth, on which date agricultural partnerships are formed for the ensuing year. The year is divided into three equal seasons, the hot season or *karsa*, including Phagan, Chait, Baisakh, and Jeth; the rains or *chaumasa* including Sarh, Sawan, Bhadon, and Asoj; and the cold season, *siala* or *jada*, including Katik, Mangsir, Poh, and Magh. The two harvests are known as *sawani* for the autumn or *kharif* crops, and *sarhi*, for the spring or *rabi* crops. Work begins with the first rains or, where irrigation is available, even before that. Maize and cotton are sown, and a little early *jowar* sown and irrigated for the bullocks. As soon as rain falls, the land is ploughed up for the autumn crops. When they are once sown, they do not require very much attention, as most of them are not irrigated at all. But the cultivator is hard at work, ploughing his land for the more valuable spring crops; and it is the amount of labour then expended on the ground that chiefly decides their out-turn. When it is too wet to plough, there are the banks and ditches to be looked too, cane to be tied up, and plenty of odd jobs to occupy the time. With the cessation of the rains comes the busiest season of the year. The land has to be finally dressed and sown with the spring crops, and the autumn

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The seasons. Agricultural calendar.

crops have to be harvested. During the cold weather the irrigation and weeding of the spring crops absorb most of the available labour; but if good Christmas rains (*mahawat*) set the bullocks free from the well, land will then be ploughed for sugar-cane, tobacco, and even for the autumn staples. Irrigation is continued almost up to the spring harvest, which generally comes with a rush, all the crops ripening almost at once; and labour at this season often fetches extraordinary prices. When the spring crops are fairly garnered, little can be done beyond finishing up the tobacco, watering the cane, sowing early maize and *jowar* for the cattle, and getting in the maize and cotton; and even this can only be done where irrigation is available. Consequently this is a season of comparative leisure; and the people occupy themselves, the stars permitting, in marrying themselves and their neighbours.

The weather.

212. The east or cold damp wind (*parwa*) is the abomination of the cultivator. It breeds, especially when the weather is cloudy and the ground wet, all sorts of pests and diseases, animal and vegetable; and the only point in its favour is that it does not dry the land and shrivel up the plants, as the fierce west wind will do, and that it is often the precursor of rain. It is specially obnoxious when the pollen is ripe and the grains forming, or about Asoj and Phagan. The west or hot dry wind (*pachwa*) on the other hand, if it is not too strong, is hardly ever unwelcome so long as there is plenty of rain; for it does no harm beyond drying things up. It is especially desirable when the plants are young, as it forces them on; and again when the grain is forming; and again when the crops are ripe; but if too strong or too hot, it is called *jhola*, and blows of the pollen, shivels up the grain, and blows down the plants: while in autumn it dries up the moisture upon which the spring sowings depend. After the spring crops the fiery hot wind cannot be too fierce or too continuous, as it dries the grain and makes winnowing easy; and, best of all, it presages a good rainy season. Rain can hardly be too plentiful, in the autumn at any rate, till the pollen forms. While that is ripening, rain washes it off and does much harm; and again when the grain is ripening rain rots it and diminishes the yield. But the injury is reduced to a minimum if a good west wind is blowing. And rain, after the crops are cut, is especially injurious, as the produce rots on the ground; and even if the grain is saved at the expense of the straw, the cattle suffer from want of fodder. The ideal season is one in which rain falls early, so as to allow the autumn crops to be sown over a large area; and falls in sufficient quantity at the end of the rains, so as to leave the ground moist for the spring sowings.

Seed time and harvest.

213. The approximate sowing and harvest times are given on the opposite page. These are the ordinary times. In an exceptional season the sowing may be further delayed a fortnight or even more, but to the injury of the produce:—

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Seed time and harvest.

STAPLE.	Seed time.		Harvest.	
	From	To	From	To
Cotton ...	1st June.	15th July.	10th Octr.	15th Novr.
Maize ...	15th "	Do.	15th Septr.	15th October.
Coarse rice ...	15th "	Do.	5th Septr.	5th "
Bajra ...	15th "	Do.	20th Septr.	20th "
Jowar ...	1st July.	5th August.	20th Octr.	20th Novr.
Gram ...	1st Septr.	10th Octr.	1st April.	15th April.
Wheat ...	20th Septr.	1st Novr.	15th "	30th "
Barley or mixture of wheat, gram, and barley ...	1st Octr.	1st Decr.	1st April.	15th April.

For the *kharif* crops rain is most needed in June and the first week of July, and it cannot be too plentiful. They are also greatly dependent upon the rains in the end of July and first half of August. If it is either too plentiful or too scanty, it injures the crops. Too much rain at the end of September also hurts the crops, as it washes off the pollen from the flowers. For the *rabi* crops rain is most needed in Bhadon (15th August to 15th September) and first half of Asoj (rest of September), when it can hardly be too plentiful; good rain in December and January is also most beneficial. Rain after the first week of March is injurious. In both crops rain at harvest time does infinite damage, as the grain when cut lies in the fields for weeks, and both it and the straw are liable to damage from wet.

Soils.

214. The main kinds of soil have been described in para. 4. The yield of "*bhuda*" in the Khadir is always poor; and if there is much rain, the soil becomes so soft that the crops fall down. At the same time it is cool, and retains its moisture for a long time; and when the covering of sand is thin and overlies better soil, which is only very occasionally the case, very good crops are produced.

Dakar is terribly stiff and hard to work, and will yield nothing without water. But when there is plenty of that, the better sort of *dakar* gives splendid rice and gram crops, one after the other, in the same year. The *kalar dahr* commonly found in the Nardak is a very treacherous soil. It yields only coarse rice. In a really good season the out-turn is heavy, but without floods or heavy rains early in the season the land cannot be sown at all, and the crops are often ruined by too much rain in September.

Means of irrigation.

214. Table No. XIV gives details of irrigation. Further information will be found at pages 177 to 203 of Major Wace's Famine Report, compiled in 1878. At that time 20 per cent.

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of the cultivation was returned as irrigated from canals, 19 per cent. from wells, 1 per cent. was flooded, and the remaining 60 per cent. was wholly dependent upon rain.

Wells.

214. The following figures show the number of wells then reported as existing in the district, with certain statistics regarding them :—

Number of wells.	Depth to water in feet.		Cost in Rupees.		Bullocks per wheel or bucket.		Cost of Gear.	Acres irrigated per wheel or bucket.	
	From	To	Masonry.	Without Masonry.	Number of pairs.	Cost in Rs.		Spring.	Autumn.
1,930	...	20	150	5	2	100 125	25	8	6
3,752	20	30	225	10	2	300	25	8	6
125	30	40	300	...	4	400	30	7	3
1,464	40	60	550	...	4		35	7	3
992	Above	80	800 to 1,200	...	4	500	40	6	2

The irrigation is usually by Persian wheel in the Khadir and in the Powadh tract to the north of the Ghagar; and elsewhere by rope and bucket.

Masonry wells in Indri and Kaithal.

215. The following table shows by assessment circles the statistics relating to masonry wells compiled at the recent settlement of Indri and Kaithal :—

Tract.	Assessment Circle.	Number of wells.	Average depth to water in feet.	Average cost of constructing well.	Average area irrigated per well.[1]
Indri	Khadir ...	938	10	200	9
	Bangar ...	589	25	400	12
	Nardak ...	224	45	550	8
	Total ...	1,751	...	...	...
Kaithal	Powadh ...	512	18	300	9
	Naili Pehowa ...	233	18	225	6¼
	Naili Kaithal ...	458	26	200	5
	Andarwar ...	344	31	300	10
	Bangar Pehowa ...	204	50	450	8¼
	Bangar Kaithal ...	104	60	400	7
	Nardak ...	85	70	400	6
	Total ...	1,940	...	...	...

(1) *See* also para. 229.

Masonry wells in Indri and Kaithal.

The figures for Kaithal are exclusive of wells in eight estates of the southern Chachra Circle transferred from Pipli. In the case of the Indri *pargana* and of the Pehowa Circles in Kaithal the average area irrigated per wheel or bucket has been shown in the last column. There are a good many wells in Indri with more than one bucket or Persian wheel. The average area irrigated in Indri is the average of 3 years *rabi* 1884 to *kharif* 1886, for the two Pehowa Circles of Pipli of the three years *kharif* 1883 to *rabi* 1886, and for the circles included in the old Kaithal *tahsil* of the four years, *kharif* 1883 to *rabi* 1887. The cost of well-sinking in the Kaithal Nardak and Bangar has perhaps been under-estimated in the table. Irrigation in these two circles is confined to the northern villages bordering on the Sarusti valley.

Well-sinking.

216. The method of well-sinking and the religious ceremonies which accompany it are described in paras. 404—407 of Mr. Ibbetson's Settlement Report.

Unbricked wells.

217. In the Khadir unbricked wells are made by digging out the sand and lining the lower part, which is of greater diameter than the upper, with a covering (*jhal*) of woven withies of *jhao* or *simbhalu* or *tunt*. They are made in a few days, and at a cost of Rs. 5 to 10, spent in buying the lining, and feeding the friends who come to help in the digging after water is reached, which must be hurried on. They fall in during the next rainy season. There were 130 *kachcha* or unbricked wells in the Indri Khadir at Settlement.

Well-gear.

218. The driving gear in a Persian wheel will cost some Rs. 15, and lasts 6 or 8 years. The lanthorn wheel and subsidiaries cost about Rs. 10 more, and only last about a year. The *mal* or rope ladder, on which the earthen pots (*tindar*), which raise the water, are fastened, is made at home, always of *dab*, which resists the action of water better than any other fibre. The whole gear is said to include 360 separate pieces of wood, which enjoy some 70 or 80 separate names among them.

The leather bucket (*charas*) in a *charas* well consists of a buffalo hide bag swung from an iron ring and handle (*mandal*). It is drawn up by a strong rope (*lao*) made of *san* fibre, and passing over a small strong wheel (*bhon* or *chak*) fixed over the well. The oxen who draw it run down an inclined plane (*gaun*) dug out by the side of the well, the driver sitting on the rope to bring the strain more horizontal, and return by a less steep incline parallel to it. When the bucket reaches the top, the man who stands at the mouth of the well seizes the rope and pulls the bucket on to a masonry platform (*panhar*) on which he stands. He then bids the driver unloose the rope. This releases the bag, which collapses, and the water shoots into the cistern (*parcha*). The empty bucket is then flung into the well, the rope being held under the foot to prevent it falling too quickly. When the oxen reach the top, the rope is fastened

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Well-gear.

on again, and the operation recommences. The directions to the driver, intermixed with prayers for protection, are delivered in a song, the cadences of which the bullocks soon learn to recognise, and stop, turn, and start of their own accord at the proper moment. The work at the well mouth is very dangerous, as any mistake will precipitate the man into the well. The bucket costs Rs. 6 to 8 and lasts a year; the iron ring and wheel Rs. 3 each. The *lao* is made at home. The bucket will lift 320 to 400 pounds of water each time, and there is no waste. The *charas* well is worked at a much greater cost of labour, but it is a much more efficient means of irrigation than the Persian wheel. For irrigating with the bucket five men are needed; two men to catch the bucket (*bairia* or *barewala* from *bara* bucket) working half a day each, as the labour is very severe; two drivers *khambi* or *kilia* from *kili* the peg, which fastens the *lao* to the yoke; and one *paniara* to look after the channels and let the water successively into the irrigation beds. There should also be four yoke of oxen, two working at once, one coming up while the other goes down the incline, and changing at noon. The well is worked from dawn till sunset, with 3 hours rest in the hot weather. Four yoke of oxen will water 3 to 4 acres in five days according to the depth of the well; two yoke will water 2½ to 3 acres in the same time.

The labour at the Persian wheel is much easier, as expressed by the saying *"Harat ek ankh se chalta,"* "one eye is enough for a *harat*;" for the driver (*gaderia*) who sits on the beam to which the yoke is tied may be blind, and the *paniara* only needs one eye. But of course a man for grass is needed. It is better to have four yoke of oxen to change every 3 hours, as the rotary motion soon tires the bullocks, but there are very generally only two. A Persian wheel will water 3 acres of land in five days, and a good deal less if the soil is very sandy.

Wells are seldom the property of a single person. The sharers irrigate in turn for a day or half a day each, according to a *rota* (*bari, osra*) fixed by lot.

Abi Irrigation.

219. Irrigation from tanks, classed in crop returns as *abi*, is practised to a small extent, especially in the Nardak. The method is the same as is followed in canal irrigation by lift.

Watering from tanks is mainly used as an auxiliary to irrigation from wells situated in the homestead lands. A *zamindar* is loth to put up his well-gear in the hot weather, and, if the rains are good, the maize will ripen without artificial irrigation, and one watering from the tank will be sufficient to mature the cotton. The toria, which is sown in October, and ripens in January, is often tank-watered, and in a bad year the land to be sown with wheat gets a preliminary watering from the tank. In the Nardak, where this form of irrigation

is most common, there are some large depressions which are filled with water in the rains, round the borders of which rice crops are sown, and watered, if necessary, by lift.

Abi Irrigation.

A curious kind of *abi* irrigation is practised on the Ghagar and its tributaries, whose channels are far below the surface of the surrounding country. Wells, sometimes lined with masonry and sometimes *kachcha*, are dug near the river bank, and carried down to a lower level than its bed. In the case of masonry wells, the face of the cylinder is exposed on the river side, and low down in it an arch or *jharokha* is built. A channel from the river leads water into the wells through this arch, and in the cold weather a small band is sometimes thrown across the bed of the stream to hold up the water. Such wells are usually worked by the rope and bucket. This *abi* irrigation was formerly of more importance than it is now. It is at best precarious, and has become more difficult as the channel of the Ghagar has become deeper.

Canal Irrigation.

220. The water passes from the canal by a head (*mohand*) into the main distributaries (*rajbaha*). From them it is distributed by small channels (*khand, khal*) to the fields. Each main channel supplies many villages; and each village has its turn of so many days. Irrigation from the canal is practised in two ways. If the water is delivered above the level of the fields, the irrigation is called *tor*, or flow; if below them, *dal* or lift. In flow irrigation all that is needed is to cut a hole (*naka*) in the channel and let the water on to the field. The area that can be irrigated in this manner in five days is only limited by the supply of water; one good opening will water 30 to 50 acres. Irrigation by lift is practised thus. The water is brought up by a low-level channel, which is met by a high-level channel into which the water has to be lifted. The end of the lower channel is enlarged and a small pool (*chuhi*) dug out; on either side of this standing places (*penta*) are dug in the banks. The end of the higher channel is also enlarged into a basin (*nyaini*) which is cushioned with grass to prevent the fallen water from scouring. Two men called *dalia* then stand, one in each *penta*, and swing between them the *dal* or scoop. This is in the shape of a small canoe, and is made of thin planks of *dhak* wood sewn together with leather, costs 8 annas, and lasts a year. It is swung by four strings, two at each end on either side of the point. The *dalias* take a string in each hand and swing the scoop, dip it into the water, swing it out full of water up and over the *nyaini*, and tip the water out by tightening the upper strings. The operation is performed with wonderful skill; but the labour is very severe, and a man can only work for an hour consecutively at it, and cannot work two days running. The outside height of the *mathik* or bank over which the water is to be lifted is 4½ feet; if the total lift is greater two lifts are used, one above the

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other. It takes four *dalias* and one *paniara* to work a *dal*, and they will water 3 to 5 acres in five days, according to the height of the lift.

Agricultural implements and appliances. Oxen.

221. Table No. XXII shows the number of cattle, carts, and ploughs in each *tahsil* of the district as returned in 1888-89. The number of ploughs in Kaithal is probably under the truth, for about 19,500 were counted at the recent Settlement.

Agricultural work is entirely done by oxen. Male buffaloes are occasionally yoked in carts, but very rarely indeed in anything else. In the light soil of the Khadir with water near the surface, small cattle costing Rs. 20 to 25 each will do all that is needed. But for the stiffer soil of the Bangar plough cattle now cost Rs. 35 to Rs. 40 each; while oxen that can do a full day's work on the deep wells of the Nardak cannot be got under Rs. 50 or Rs. 60 each. An ox begins work when rising 4, and works for 10 years. For a bucket well, eight oxen is the full complement; for a Persian wheel, four. A plough is now always reckoned at two bullocks. It used to be reckoned at four; the change is due to the greater sub-division of land owing to increased population, as many of the agricultural accounts are kept by ploughs.

Fodder.

222. Fodder in general is called *nira*. The fodder of the autumn crops consists of the stalks of the great millets and of maize, which are carefully stacked on end in a stack called *chhor*; of rice straw which is merely piled up in a heap (*kunjra*); and of the *bhus*, or broken straw left after thrashing of the pulses. The spring crops give *bhus* only, also called *turi* if of wheat or barley. *Bhus* is stored in a *kup* made of a wisp of straw (*thanda*) wound spirally round and round upon a foundation of cotton stems so as to form a high circular receptacle in which the *bhus* is packed and preserved and thatched when full. A long low stack fenced in by cotton stems alone is called a *chhan* or *bhusari*. Near the city the people store their *bhus* in mud receptacles (*khuta*) and plaster it all round the top. The *bhus* is taken out from a hole at the bottom as wanted. Stems of millet and maize are chopped up into small pieces (*sani* or *kuti*) before being given to the cattle. An ox during ordinary work will eat 20 sers of grass and a ser of grain daily; if working at the sugar-mill or well bucket, nearly twice that. The cost of stall feeding may be taken at about 2 annas a day. Of course the fodder varies according to the season. The mass of it consists of grass and straw of cereals; a little pulse straw is always added; and green food when obtainable. In the cold weather *methi* and rape and carrots, and at all times the weedings, are given to the cattle. Besides this some cotton seed or oil-cake, or either *gwara*, *moth*, or gram is daily given. The best fodder of all is the straw of the small pulses, and is called *missa*; after that, that of wheat and barley, called *turi*; after that the *jowar* stems or

Fodder.

chari. Bajra stems are seldom given alone. They are chopped up and mixed with one-third of *mung* fodder, or failing that, with some oil-cake (*khal*) or pea-meal of gram. In famines the cattle will eat almost anything. The sacred *pipals* are stripped and even the thorny *hins* is cut up and given to the starving beasts. Where sugar-cane is grown it is cut green to keep the bullocks alive.

Manure.

223. The dung heap (*kurri*) is started when the rains are over. A great hole is dug in the ground, and straw, cattle-bedding, sweepings of horse and cattle-sheds, and all sorts of refuse, are thrown into it. During the rains the cow-dung is too wet to be patted up into fuel cakes, and is all thrown on to the heap. The rain is allowed to fall freely upon it, and it is periodically turned over and worked up by the sweepers. As soon as the rains are over, it is fit for use. It is taken to the field in carts, sprinkled by the sweepers, and ploughed in. Manure proper (*khar* or *khat kurra*) is not very often used as a top-dressing. But the market gardeners largely use the nitrous efflorescence (*rehi*) found about the village homesteads as a top-dressing for young wheat. The similarity of the name has led to statement that the injurious saline efflorescence or *reh* which covers so much of the country is used for manure. This is not the case in Karnal. *Reh* consists chiefly of sulphates, and is injurious; *rehi* of nitrates, which, of course, are the best of manures. Weeds, grass, and plant stems, and roots which cannot be used as fodder, are generally burnt on the fields and the ashes ploughed in. The great object of the cultivator is to get enough manure for his sugar-cane. After that, what is over is divided between fine rice, cotton, maize, and the best wheat land; but these crops, excepting rice, are often sown after sugar-cane, when no fresh manure is given. In the Nardak manure is little used, as the people say truly that in the stiff unirrigated soil with a scanty rain-fall it only burns up the plants.

The above refers especially to the part of the district settled by Mr. Ibbetson. In the irrigated parts of Indri and Kaithal, except in the canal irrigated villages in the south of latter *tahsil*, the people make the best use of the manure at their disposal. Mr. Douie wrote in the Indri Assessment Report:—

"The fuel and manure is stored close to the homestead, and the cold-weather visitor, who sees the lanes round and leading into the villages lined with heaps of cow-dung and decaying straw, is apt to carry away an exaggerated impression of the unhealthy conditions under which the people live, forgetting that all this manure in the Khadir and Bangar villages is carefully removed, and spread over the fields before the rains."

The sugar press.

224. The sugar press or *kolhu* consists of a stump of a *kikar* tree hollowed out and bound with iron, and firmly fixed

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The sugar press.

in the ground. The hollow is lined with pieces of hard wood (*rora*) which are renewed when worn out, and are so shaped as to form a large upper cavity for the reception of the pieces of cane, and below that a small socket in which the ball of the crusher works. The crusher (*lat*) is a long beam of *kikar* with a knot at the lower end which works in this socket; and above that a conical shaped enlargement (*churan*) which crushes the cane against the sides of the *kolhu* as it moves round in the cavity. The beam to which the oxen are fastened (*pat*) has a curved bearing (*gali*) at one end which travels round a groove outside and at the bottom of the *kolhu*; it is heavily weighted at the other end. To it is fastened a connecting rod (*manak, thamba*) which projects upwards and is tied at the top to a flat piece of wood (*makri*) with a socket in its highest end. Into this socket the top of the crusher fits. As the cane is crushed the juice runs down past the ball and socket joint and passes out by a small hole at the bottom of the press. The oil press has the same name and is identical in construction with the sugar press. The native *kolhu* is now being superseded by the Behra sugar mill with iron rollers.

The plough and minor agricultural implements.

225. A description of the plough used in Karnal and of the minor agricultural implements is given in paras. 413 and 414 of Mr. Ibbetson's Settlement Report.

Agricultural operations.

226. A full account of agricultural operations from the ploughing of the land to the measuring out of the grain will be found in paras. 424—436 of Mr. Ibbetson's Settlement Report.

Irrigating capacity of wells and average area worked by ploughs in different parts of *tahsil* Panipat and *pargana* Karnal.

227. Writing in his Settlement Report of Panipat and *pargana* Karnal Mr. Ibbetson remarked:—

"In the canal tract five ploughs with ten good bullocks and 20 men will cultivate 60 acres of land, which will be distributed somewhat as follows: Cane 5 or 6 acres; cotton 5; rice and *jowar*, 30 between them, the low swampy land bearing rice; wheat, 20. The small pulses will be sown among the *jowar*; while gram or mixed grains will follow the rice, and *methi* will be sown among the cotton in the same year. On the canal a plough will cultivate a much larger area than in the Khadir, because the oxen are not wanted for irrigation; but the number of men must correspond with the area, and not with the number of ploughs.

"In the Khadir a Persian wheel will have 10 to 16 acres attached to it and can irrigate about 12 acres in a bad year. In good seasons the area watered is far less. There will be two ploughs on it, with 4 oxen, and 4 or 5 men where the women work, and 6 or 7 where they do not; and these same ploughs will perhaps cultivate some 4 acres of unirrigated land in addition. On five such wheels the 80 acres of land will be distributed somewhat as follows:—Cotton, 8 acres; sugar-cane, 6; maize, 6; *jowar*, 20; *gwara*, 4; *moth*, 4; wheat 28; gram, 4. *Methi* will be sown among the cotton, and the maize will be

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followed by barley or wheat in the same year. Among bad cultivators the area per plough will be greater; but it will probably include a good deal of unirrigated land, and the total yield per plough will be smaller.

Irrigating capacity of wells and average area worked by ploughs in different parts of *tahsil* Panipat and *pargana* Karnal.

"In the Nardak, where the Rajput runs his plough over the ground, flings in the seed, and trusts to God for the produce, the area which can be cultivated by a plough is capable of extraordinary extension in a favourable season. Five ploughs with their 10 oxen and 12 men (for here weeding is not practised, and few men are required) will cultivate some 100 acres, almost all unirrigated, as follows:—Coarse rice, 30 acres; *jowar*, 25; cotton, 5; sesame, 7; maize, 5; gram and barley, 10; gram, 20; and a little rape. But if the early rains are heavy, coarse rice will be sown in every available acre of land fit for it, up to 50 to 70 acres; for the preparation of the ground involves little labour, and the seed time has wide limits. And a great part of that will be followed by gram in the spring. So, again, if the late rains are heavy and last long, the Rajput goes out rejoicing and ploughs the whole country up for gram. On the other hand, if the rain fail, hardly a sod will be turned or a seed sown in the high Nardak."

Area worked by ploughs in different parts of *tahsil* Kaithal and *pargana* Indri.

228. The statistics relating to ploughs in *pargana* Indri collected at the recent Settlement indicated a deficiency of agricultural stock, specially in the two upland circles. The number of cultivated acres per plough in the Khadir was 11, in the Bangar 17, and in the Nardak 23. It must be remembered that the enumeration was carried out after the drought of 1883-84, during which 3,782 bullocks died, which is equivalent to a loss of 1,891 ploughs. As the total number of ploughs by the Settlement returns was 9,423, it may be said that the drought cost the *pargana* at least one-sixth of its plough cattle. Valuing the Khadir bullocks at Rs. 20, and the Bangar and Nardak oxen at Rs. 45 each, we may estimate the loss at about Rs. 1,25,000. Another reason why the acreage per plough appears large, is that the amount of land which bears two crops yearly is very small. Moreover, the unirrigated cultivation in the Nardak, and in some parts of the Bangar, is of the roughest description, and in the Nardak, the rice lands, which constitute one-third of the total cultivated area, are, as a rule, not ploughed at all, but merely trodden out by cattle. The cultivated area in that circle, as recorded in our returns, is also much above the average area put under crop. The Settlement figures for Kaithal give one yoke of oxen to 11 acres of cultivation in the Powadh, 15 in the Andarwar, 16½ in the Pehowa and 18 in the Kaithal Naili, 19 in the Nardak and Pehowa Bangar, and 22 in the Kaithal Bangar. Though there are fewer ploughs in proportion to cultivation in the Kaithal Bangar than in the Nardak, the tillage is much better in the former. The Rajput scamps his field work partly because he is not by nature very industrious, but largely because he has so much work to do which should properly fall to the lot of his women folk.

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Irrigating capacity of wells in *tahsil* Kaithal and *pargana* Indri.

229. The real irrigating capacity of wells in Indri Circle may be judged from the following table :—

CIRCLE.	No. of wells.	No. of well wheels or buckets.	AREA IRRIGATED PER WHEEL OR BUCKET.									
			Area entered in Settlement Record.	Rabi 1883.	Kharif 1883.	Total.	Rabi 1884.	Kharif 1884.	Total.	Rabi 1885.	Kharif 1885.	Total.
Khadir	938	1,119	9¾	7	5	12	8	2	10	3	1	4
Bangar	589	706	17	10	5	15	11	1	12	7	2	9
Nardak	224	241	11⅓	8¼	2½	10¾	9	...	9	4	...	4

The figures entered in the Settlement record represent the whole area commanded by the wells and watered from them from time to time.

In the first three harvests the wells were strained to the utmost, and in the fourth and fifth, owing to abnormal rainfall, there was very little irrigation. The average for the three years is, in the Khadir 9 acres per well wheel, in the Bangar 12 acres, and in the Nardak 8 acres. There is usually very little irrigation in the Nardak in the Autumn harvest.

In Kaithal wells are little worked except in the Powadh, Andarwar, Naili, and Bangar Pehowa Circles. The average area irrigated in a series of years is shown below :—

CIRCLE.	No. of wells.	AREA IRRIGATED PER WELL.					
		Area entered in Settlement Record.	Kharif-Rabi 1883-84.	Kharif-Rabi 1884-85.	Kharif-Rabi 1885-86.	Kharif-Rabi 1886-87.	Average.
Powadh	512	11	11	8	8½	9½	9
Andarwar	344	16	13	7	9	11	10
Naili Kaithal	458	10	11	2	3	4	5
Naili Pehowa	233	9	10	4	4½	...	6¼
Bangar Pehowa	204	9½	10	7	8	...	8¼

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Irrigating capacity of wells in *tahsil* Kaithal and *pargana* Indri.

The comparatively small area attached to each well in the Powadh is due in part to the character of the water bearing stratum, and in part to the small size of the bullocks employed. There is little Kharif irrigation in ordinary years, except in the Powadh, where maize, cane, and cotton are largely grown. The Naili wells may be looked on in the light of an insurance against drought and failure of floods. In a famine year a well in the Naili can cover as large an area as a Powadh well. The *zamindars* of the Andarwar and Pehowa Bangar keep powerful oxen, but the great depth of the water level in the latter circle reduces the irrigating capacity of the wells.

Cost of Cultivation.

230. On this subject Mr. Ibbetson writes :—

"It is impossible to estimate the cost of cultivating any particular staple by itself; or at least, the estimate, when made, is meaningless. Take tobacco, for instance. The necessary labour of both men and oxen would, at market rates, amount to a good deal more than the crop is worth. But the men and oxen are both there; and their labour is for the most part given at a time when it could not be used profitably in any other way, the tobacco season being the slack time of the year. The only estimate that is worth making is that of the whole cost of cultivating the land under one plough. Taking two oxen costing Rs. 35 each, eating one anna a day, and working 10 years; three men with their families at Rs. 3 a month each, (I take three so as to include the labour of the village menials) half the interest on Rs. 200, the cost of a well; and allowing for wear and tear of implements, we have for yearly expenses—

	Rs.
Keep of bullocks	45
Deterioration	7
Keep of cultivators	108
Interest on cost of well at 20 per cent. ...	20
Wear and tear of gear	5
	185

or Rs. 185 for, say, 10 acres, or Rs. 18-8 per acre. But the actual expenses will be less; the cattle will be home-bred; the fodder, food and clothes will be home produce; and much of the cost of the well will have been extra labour not paid for, and which bears no interest.

"In the canal tract there will be four men in place of three, and instead of interest on the cost of a well, there will be about Rs. 2 an acre all round for canal water rates. This will bring the cost of cultivating 12 acres to Rs. 225, or Rs. 18-12 an acre; practically the same as in the Khadir. But such estimates are, I believe, very unprofitable, and give us little information about the real cost of production as it comes out of the cultivator's pocket. There are some further remarks on the subject at section 132 of my printed Assessment Report on *tahsil* Panipat."

Proportion of crops grown in each harvest, and proportion irrigated.

231. Table No. XX shows the areas under the principal agricultural staples for the years 1873-74 to 1888-89. The figures for the earlier years are quite untrustworthy, but they are

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Proportion of crops grown in each harvest, and proportion irrigated.

retained as the Gazetteers of other districts give statistics from 1873-74 to 1881-82. Reliance can be placed on the figures for the past three years, and these have been analyzed by *tahsils*. Taking one year with another there is a slight preponderance of *Rabi* crops in the district as a whole. The irrigated area fluctuates widely with the character of the seasons. In Panipat about one-third of the crops are watered on the average, in Karnal probably not above one-eighth, while in Kaithal the proportion is at present far less.

Cultivation of principal crops.

232. The table given below shows various particulars concerning the cultivation of each of the chief staples. The figures refer to crops properly cultivated; but of course there is always a good deal of land in which the cultivation falls far short of the standard. Most labour is naturally bestowed on the irrigated and manured land, the other getting the leavings of the cultivator's time. The cultivation of vegetables, drugs, spices, pepper, and the like is confined to the market gardens round the town, and to a corner of a field here and there which satisfies the private needs of the villagers. The cultivation of opium has been forbidden in the Dehli territory since 1825; and the prohibition was extended without much consideration to the Indri *pargana* and Kaithal *tahsil*, when they were added to Karnal on the abolition of the Thanesar district, with the result of seriously crippling the resources of some estates in the north of Indri, which depended largely on the poppy. The existing arrangements have become more anomalous since the greater part of Pehowa was transferred to Karnal, for the growing of opium is now allowed in one corner of the Kaithal *tahsil*, while it is forbidden in the rest of the district. A proposal to allow the cultivation of *post* in Indri has for the present been negatived.

Native name.	English name or description.	Botanical names, and references.	No. of ploughings.	Maunds of manure per acre.	No. of waterings after sowings.	No. of weedings.	Seers of seed per acre.
Ikh ..	Sugarcane ..	Saccharum officinarum: A. C. 59; S 260; B. P. 1052ff.	10 to 15 or more.	600	4 to 5	..	..
Bari ..	Cotton ..	Gossypium herbaceum: A. C. 25; S 22; B. P. 1731.	2	400	0 to 1	3	7½
Makki ..	Maize ..	Zeamays: A. C. 34; S. 263; B. P. 799ff.	5 to 6	180	1 to 2	2 to 3	7½
Dhan (*ziri*) ..	Fine rice ..	Oryza satia: A. C. 31; S. 257 B. P. 808ff.	2	?	?	1 or more.	?
Dhan (*santhi or munji*).	Coarse rice ..	Oryza glutinosa (as above).	2 to 3	..	..	1	22½
Jowar for grain.	Great millet	Holcus sorghum: A. C. 20; S. 262; B. P. 880.	2 to 3	..	..	1 to 2	7½
Jowar for fodder.	Great millet	Holcus sorghum: A. C. 20; S. 262; B. P. 880.	2	..	..	..	15 to 30
Bajra ..	Spiked millet..	Holcus spicatus: A. C. 23; S. 259; B. P. 837.	2	..	..	1	1½ to 2
Mandwa ..	A small cereal	Eleusyne coracana: A. C. 36; S. 254; B. P. 839.	2	?	1	1	?

NOTE.—A. C. is Wright's *Agriculture of Cawnpore*. S. is Stewart's *Punjab Plants*. B.P. is Baden Powell's *Punjab Products*.

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Cultivation of principal crops.

Native name.	English name or description.	Botanical names, and references.	No. of ploughings.	Maunds of manure per acre.	No. of waterings after sowings.	No. of weedings.	Seers of seed per acre.
Moth ..	A small pulse..	Phaseolus aconitifolius: A. C. 38; S. 73; B. P. 847.	2	..	..	..	5
Urd ..	" " ..	Phaseolus radiatus: A. C. 38; S. 73; B. P. 846.	2	..	..	..	6
Mung ..	" " ..	Phaseolus mungo: A. C. 38; S. 73; B. P. 844.	2	..	..	..	5
Gwara ..	A pulse ..	Dilichos psoraloides; B. P. 849.	2	..	..	..	5
Til ..	Sesame ..	Sesamum orientale: A. C. 56 S. 149; B. P. 1,623.	2	..	..	..	5
San ..	A fibre ..	Hibiscus cannabinus: A. C. 43; S. 22; B. P. 1,758.	..	..	..	..	..
Sani ..	" ..	Crotolaria juncea: A. C. 44; S. 64; B. P. 1,753.	1	..	..	..	20
Gehun ..	Wheat ..	Triticum æstivum; A. C. 45; S. 262; B. P. 262ff.	10 to 12	400	4 to 5	2	37½
Jau ..	Barley ..	Hordeum hexastichum: A. C. 48; S. 256; B. P. 779ff.	2 to 4	?	?	..	30
Chana ..	Gram or chick pea.	Cicer arietinum: A. C. 50; S. 63; B. P. 850.	1 to 4	..	..	..	12½ to 20
Masur or Masri.	Lentils ..	Ervum lens: A. C. 38; S. 68; B.P. 851.	2	..	0 to 4	..	12½
Sirsam ..	Rape ..	Brassica campestris: A. C. 55; S. 11; B. P. 1,618.	2	..	..	..	12½
Methi ..	Fenugreek ..	Trigonella fenugrœcum: A. C. 65; S. 77; B. P. 881.	2	?	4 to 6	..	12½ to 20
Tambaku ..	Tobacco ..	Nicotiana tambacum: A. C. 72; S. 158; B. P. 110ff.	8 to 10	300 to 600	7 to 10	7 to 10	?
Karar ..	Safflower ..	Cartamus tintorius: A. C. 50; S. 124; B. P. 464f.	..	..	..	..	..

NOTE.—A.C. is Wright's *Agriculture of Cawnpore*. S. is Stewart's *Punjab Plants*. B.P. is Baden Powell's *Punjab Products*.

Diseases and enemies of plants.

233. Many of the evils to which plants are subject are peculiar to particular staples, and are noticed in their places below. But a few are very common. Much information on the subject has been collected by Mr. Baden-Powell.

Pala or frost is very injurious if severe and not accompanied by rain, or if a west wind blows at the time. There is a saying: *girta mih pacheta pala; yih kirsan ka gala:* "a tardy rain and frost are the husbandman's loss." It specially attacks cotton, sugarcane, gram, rape, and early wheat while in the ear.

Kag, kagwa, or smut is produced by east winds with cloudy damp weather. It attacks wheat especially; and also *jowar* and sometimes barley. But it is, as a rule, sporadic in the two latter.

Al or *ala* is a black oily appearance upon the leaves of cotton and sugarcane. But it is also the name of a gregarious caterpillar, which especially attacks cotton, rape, and sesame.

Kungi or rust is produced by the same influences which produce smut. It attacks wheat chiefly, and is exceedingly destructive.

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Diseases and enemies of plants.

Jackals do most harm to maize, of which they "do not leave even the bones" and to sugarcane. They also eat *methi* and safflower.

Pigs are catholic in their taste; but if they have a preference, it is for rice, *jowar*, maize, and cane.

White ants eat most things, especially gram, cotton, and cane. They cannot move in *dakar* as it is too stiff and moist for them; and plenty of water will keep them away.

Ujala or general withering up from any reason, and *sokha*, or withering up from want of water, are of course evils common to all plants.

Insecurity of the cultivation.

234. The two features of the agriculture of the district, which require to be constantly kept in view, if the revenue administration is to be successful, are :—

(*a*) the wonderful shrinkage of the sowings, and
(*b*) the extent to which the crops sown fail,

in a bad year. A person unacquainted with the district or with similar tracts in the Dehli Division might be tempted to doubt the accuracy of some of the statements made on this subject, but they are fully borne out by the evidence of careful harvest inspections made during and since the recent settlement of Indri and Kaithal. These features of the cultivation are naturally less marked than elsewhere in the Khadir of the Jamna and in the Panipat *tahsil*, a large part of which is protected by the Western Jamna Canal. The harvests in the Jamna valley succeed best in years of moderate rainfall, and in the autumn the danger is rather from overflooding than from drought. The maize crop suffers severely from floods. The percentages of the areas sown and harvested on the recorded cultivated area in the three assessment circles of *pargana* Indri in 1883-84 and 1884-85 are shown below. The first was a year of extreme drought, in the second the rainfall was extraordinarily heavy :—

Harvests.	Details.	Khadir. 1883-84.	Khadir. 1884-85.	Bangar. 1883-84.	Bangar. 1884-85.	Nardak. 1883-84.	Nardak. 1884-85.	Total Pargana. 1883-84.	Total Pargana. 1884-85.
Kharif ...	Harvested	36	48	26	51	16	48	28	49
	Failed ...	5	2	18	3	18	12	12	5
	Total sown	41	50	44	54	34	60	40	54
Rabi ...	Harvested	42	61	25	52	11	41	30	54
	Failed ...	20	3	18	1	9	1	17	1
	Total sown	62	64	43	53	20	42	47	55
Both harvests.	Harvested	78	109	51	103	27	89	58	103
	Failed ...	25	5	36	4	27	13	29	6
	Total sown	103	114	87	107	54	102	87	109

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Insecurity of the cultivation.

In the Bangar, the area sown in 1883-84 was 17 per cent. below the cultivated area, and notwithstanding the large amount of well irrigation, two-fifths of the crops failed. In the Nardak, little more than half of the cultivated area was sown, and half of the land sown yielded nothing. (*See* also para. 238). In 1884-85 the people put every acre they could under tillage. The two great autumn staples of the Nardak are rice and *jowar*. The sowings of the former fluctuate to an extraordinary degree, and the crop is liable to suffer severely, both from drought and overflooding. In the autumn harvest of 1883, above half the small area sown yielded nothing, and in the *kharif* of 1884, heavy rains at the close of the season destroyed about one-fifth of this crop in the Nardak.

A similar table, the figures in which speak for themselves, is given for the five assessment circles of the old Kaithal *tahsil*. In only one of these, the Powadh, can the crops be considered even tolerably secure :—

Harvest.	Detail.	Nardak. 1883-84.	1884-85.	1885-86.	1886-87.	Bangar. 1883-84.	1884-85.	1885-86.	1886-87.	Andarwar. 1883-84.	1884-85.	1885-86.	1886-87.
Kharif	Crops	13	56	57	37	15	61	63	47	22	47	36	35
	Failed	21	4	6	15	38	1	1	12	12	3	11	15
	Total sown ..	34	60	63	52	53	62	64	59	34	50	47	50
Rabi	Crops	11	37	17	6	6	32	28	6	29	56	53	26
	Failed	11	1	2	5	5	1	1	11	17	1	3	2
	Total sown ..	22	38	19	11	11	33	29	17	46	57	56	28
Both Harvests ..	Crops	24	93	74	43	21	93	91	53	51	103	89	61
	Failed	32	5	8	20	43	2	2	23	29	4	14	17
	Total sown ..	56	98	82	63	64	95	93	76	80	107	103	78

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Insecurity of the cultivation.

Harvest.	Detail.	Powadh. 1883-84.	Powadh. 1884-85.	Powadh. 1885-86.	Powadh. 1886-87.	Naili. 1883-84.	Naili. 1884-85.	Naili. 1885-86.	Naili. 1886-87.
Kharif	Crops	41	49	46	41	9	30	19	28
	Failed	5	1	2	7	12	8	10	14
	Total sown ..	46	50	48	48	21	38	29	42
Rabi	Crops	40	52	55	33	20	63	51	31
	Failed	13	1	2	10	9	5	13	14
	Total sown ..	53	53	57	43	29	68	64	45
Both Harvests ..	Crops	81	101	101	74	29	93	70	[illegible]
	Failed	18	2	4	17	21	13	23	28
	Total sown ..	99	103	105	91	50	106	93	87

In the Pehowa Naili and Bangar recently added to the Kaithal *tahsil* the percentage which the area of crops harvested bore to the total cultivated area, taking the average of the three years 1883-84 to 1885-86, was 66½ and 72½ per cent.

System of cultivation in *pargana* Indri.

235. The following account of the system of cultivation followed in Indri is taken almost *verbatim* from the assessments report.

Proportion of *kharif* and *rabi* crops.

236. In the Khadir *Rabi* crops predominate. In the Bangar, the area under tillage in both harvests is about the same; for the great extent of irrigated cultivation in the *rabi* makes up for the smaller area under dry crops. In the thirsty Nardak soil, the *kharif* harvest is the most important.

Proportion of first class crops.

237. If we exclude fine rice, the cultivation of which depends mainly on abundant rains, the total area under the better class of autumn crops varies little from year to year. Maize is largely raised on land which can be irrigated if necessary, and though a considerable falling off occurs in a bad year, this is balanced by greatly increased sowings of toria. This crop is much cultivated when the autumn harvest has failed, in order that the people may have wherewithal to pay the Government demand, and the wheat land is sometimes sacrificed for its sake. It is put in in October, and reaped in the month of January. Coarse rice is not an important staple, except in the Nardak, and *urd* is only grown to any large extent in the Bangar, though some *urd* is always sown along with unirrigated maize. The proportion of superior autumn crops grown in each circle is shown below :—

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Proportion of first class crops.

Year.	Khadir.	Bangar.	Nardak.
1883-84	19	12	3½
1884-85	23	15	7½

The percentage is highest in the Khadir, owing to the larger amount of cane, maize, and *ziri* raised in that circle; but the cultivation of these crops will be greatly diminished by the closing of the old canal below Indri.

The proportion of wheat in the different circles is as follows :—

Year.	Khadir	Bangar.	Nardak.
1883-84	28½	15½	4
1884-85	36	20½	6

In the Bangar, wheat can only be grown at all as a dry crop in the north of the circle, and in the Khadir lands of Khadir-Bangar villages.

Cultivation of *barani* lands in Indri.

238. Purely *kharif* cultivation is chiefly found in the case of *kalar dahr*. By far the greater part of the rice land is of this description. In a year in which the rainfall is seasonable and abundant, a crop of coarse *santhi* rice can be raised, but the soil is too poor and stiff to yield a spring crop.

There is also some very sandy soil in the Khadir, and some high land off which rain water drains rapidly in all the assessment circles, in which only inferior autumn crops, such as *chari*, *bajra*, and *moth* can be grown. Such high land is locally known as "*thali*." It is less usual to find land which is only cultivated in the *rabi* harvest. This system is chiefly followed in the case of land which lies so low, as to be usually under water in the rains, and there is little of this description, except in the Khadir.

Three-fourths of the *barani* land is of the kind known as "*magra*" (see para. 4). The people have learned that, where the *magra* is at all level, the most profitable method of farming is to put in a spring crop in the end of one agricultural year, and an autumn crop in the beginning of the next, after which the soil is given a year's rest. There are obvious advantages in adopting this system. After the *kharif* harvest, the land is

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exhausted by the fact that it has borne two crops in succession, and it is also, as the result of the rains, overgrown with grass and weeds. Besides, the pulses, *chari*, and *jowar* raised on unirrigated land are not reaped until the season for sowing gram is past. An industrious man ploughs the land as soon as rain falls in January, eradicating the weeds and exposing the soil to the air. If the spring crop to be raised is gram, the land will not be ploughed again till July, and possibly not till September. The gram is sown in land which has recovered its strength and is tolerably free from weeds. The growth of weeds and grass in the cold weather is insignificant, and the *chari* which succeeds the gram is also grown in comparatively clean soil. The same system exactly is followed in the Bangar and Nardak on all outlying or "*jangal*" wells; but the crops grown are of course different. The main feature of the dry cultivation is its extreme precariousness in the uplands included in the Bangar and Nardak circles. The rainfall decreases as one proceeds westward from the river, and the stiff soil of the Nardak, which needs most, gets least. But the worst features of the meteorology of the district, are its unequal distribution from year to year, and its frequent unseasonableness. The average is about the same as in the Nawashahr *tahsil* of Jalandhar, but, while the yearly total there has, in the last 20 years, only once been less than 20 inches, in Karnal it has fallen below that figure four times. When we realize that in *rabi* 1885, the Bangar and Nardak had 14,743 and 11,047 acres of dry crops respectively, as compared with 2,020 and 1,211 acres in *rabi* 1884, and that even in the Khadir the area in the one year was double that in the other, we can appreciate the terrible uncertainty of the harvests. It is only a small part of the difference which is due to the non-irrigation in 1884 of crops raised on well lands.

Double-cropping in Indri.

239. In the Bangar and Nardak, double-cropping is practically confined to the irrigated and manured lands close to the village. In addition there is a good deal of superior rice land known as *nala*, in which, under favourable circumstances, *santhi* rice is followed by gram. Occasionally a small irrigated plot in the homestead lands may bear, in a twelve month, successive crops of maize, barley, and tobacco. In that case the barley will very probably be cut green for fodder.

Cultivation of well lands in Indri.

240. In the Bangar and Nardak circles, the wells are classed as "*gora*" or homestead wells, and "*jangal*" or outlying wells. The former are those situated in the lands immediately surrounding the village. One reason for the fertility of such land is well known. But besides, in these two circles, all the manure is expended on the homestead fields. The cultivation is, therefore, to a large extent, *do-fasli*. Where the people are very industrious, and manure is plentiful, one finds double-cropping all over the area watered from the *gora* wells. If the supply of manure is limited, the *do-fasli* area is less. As a rule, the inner belt of

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the *gora* lands is usually *do-fasli*, while the outer belt is mainly *ek-fasli*. Where the Bangar cultivator intends to take a double crop, he ordinarily puts in maize in June, manuring the fields heavily. This manure is intended to benefit both the autumn and spring crops. Indeed, its effect on the latter is probably greater than on the former. As much as 600 or 700 maunds of manure per acre is sometimes put in, but usually half this quantity is considered sufficient. Maize in the Bangar is generally followed by barley or carrots; or, where the tillage is somewhat inferior, by a mixed crop of gram and safflower, or gram, safflower, and toria. In the best Bangar villages, and almost universally in the Nardak, wheat follows maize. In the outer *gora* fields, wheat is often cultivated as the sole crop of the year, or wheat is followed by cotton, and the land allowed a year's fallow after the cotton has been picked. In all but the very best Bangar estates, the *gora* lands are mainly devoted to raising the food of the cultivator. It is different in the Nardak, where there are fewer outlying wells on which to grow the revenue paying crops, and where the character of the soil favours the cultivation of wheat. The Nardak *gora chahi* cultivation, except in the villages in the north-east of the circle, is inferior to that in the Bangar. In the south, maize is sown as an unirrigated crop on the homestead well lands, and in these circumstances manure would be harmful, and is not used. Nor is the irrigated wheat which follows the maize manured.

The outlying or *jangal* wells are cultivated on the *ek-fasli* system. The lands attached to them are not manured. The object of the *zamindar* is to raise as much wheat as possible upon these wells; but experience has taught him that, even though the land is not cropped in the autumn harvest, it is impossible to put in wheat more than twice in succession without exhausting the soil. Provided the land is treated properly, the produce of the unmanured wheat on the outlying wells is supposed to be superior to that of manured wheat grown in the homestead fields. In order to restore the quality of the land, unirrigated gram is substituted for wheat in the second or third year, or the wheat is followed immediately by cotton, *urd*, or *chari*, and the land is left for a year, after which wheat is again sown.

It is the cultivator's object not to be compelled to work these wells in the autumn harvest. If he is lucky, even the cotton will ripen without artificial irrigation. The area attached to the well is often far larger than can be watered in any one year, and a considerable part of it will be found in any particular harvest under dry crops.

The very small amount of *do-fasli* land on the homestead wells in the north of the Khadir is very striking. Manured wheat is put in yearly, or wheat is followed by cotton, and the land given a rest for a year. Occasionally wheat is followed

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by maize, and the latter by barley, or gram and barley, or cotton and cane, or maize and cane, are grown within two agricultural years. The land is too poor to bear double crops regularly without more manure than is available. A good deal of cane is raised on the outlying wells and the cropping on them is not markedly inferior to that in vogue on the homestead lands.

Manure is carried much further from the village site in the Khadir than in the Bangar, but if the well lands are too distant to get any manure, *chari* takes the place of cotton or maize after wheat. In the south of the circle the system of tillage followed on the homestead wells is more like that which prevails in the Bangar.

A good idea of the cropping of the well lands in each circle in a dry year, when the wells have to be worked to their fullest capacity, can be obtained by considering the average area per wheel or bucket put under each crop in *kharif* 1883 and *rabi* 1884.

Circle.	Harvest.	Area per well wheel or bucket.	Distribution of crops in Acres.							Harvest.	Area per well wheel.	Distribution of crops in Acres.				
			Cane.	Cotton	Maize.	Toria.	Mandwa.	Other crops.	Failed.			Wheat	Barley.	Tobacco and vegetable.	Other crops.	Failed.
Khadir	Kharif.	5	·5	·9	1·3	1·1	·7	·4	·1	Rabi.	8	5·3	1·2	·4	·6	·5
Bangar		5	·4	1·3	1·3	·1	·4	·4	·2		11	6·7	1·7	·8	·7	1·1
Nardark		2½	..	·5	·7	·2	·6	·3	·2		9	5·0	1·8	·9	·4	·9

In the Nardak, as noted above, the wells are not used at all for the autumn harvest in a year of good rainfall, but the homestead fields are cropped with unirrigated maize and cotton.

Sailab cultivation in Indri.

241. The Jamna *sailab* is on the whole inferior to ordinary *barani* Khadir soil. It is only valuable in dry years. In a wet season, the autumn crops are drowned, and the land lies so long under water that it cannot be properly prepared for the spring crops, which are choked with noxious weeds.

Rabi crops of course predominate. There is a good deal of double cropping, maize being followed by mixed crops of barley and *masri*, *alsi*, &c.

Exhaustion of the soil.

242. There is no reason to suppose that the soil is being exhausted. The description given of the system of tillage in paras. 238—240 shows that the powers of the land are not unduly strained, and the number of enforced fallows due to failure of rain in the Bangar Nardak is an effectual safe-guard

against over-cropping. Complaints are sometimes made of the increase of *reh* in the Khadir, but it is doubtful whether they are well founded. Some of the hard *kalar* land in that circle has undoubtedly been abandoned since last settlement, but its cultivation can never have been worth much.

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Exhaustion of the soil.

Cultivation of *barani* lands in Kaithal.

243. The dry lands of the Nardak, Kaithal and Pehowa Bangar, Andarwar, and Kaithal and Pehowa Naili cover 86 per cent. of the *barani* area and 68 per cent. of the whole cultivation of the *tahsil*. The dry crops are the same in all four circles, *jowar* with *urd*, *bajra* with *mung*, and *gram* with *sirsam*. The *bajra* is usually the small variety called *bajri* which yields several small spikes on one stalk and has a very small grain. *Moth* and a little *til* are sometimes sown with *bajri*, especially in the lighter lands in the south of the Bangar Circle. Although *bajri* stalks furnish but poor fodder, the Jat of the southern Bangar is too hard pressed for food for his cattle to throw them away, and *bajri* ricks, often blackened with age, scattered here and there about the fields, are a curious feature in some Bangar estates. Such ricks are kept even for six or seven years, if the occurrence of severe drought does not cause them to disappear sooner. Coarse rice is an important staple in the Nardak and Pehowa Bangar. Cotton accounts for 3 per cent. of the *kharif* in the Kaithal Bangar, 4 per cent. in the Nardak and Kaithal Naili, and 5 per cent. in the Andarwar and Pehowa Naili. In the spring harvest mixtures of gram with barley or wheat are found, but the typical crop is gram with a small amount of *sirsam* sown with it. *Sirsam* also occurs as a crop by itself, but is usually sown in lines among the gram. Gram, *sirsam*, *jauchana*, and *gochani* practically absorb the whole area of dry spring crops. In the Powadh *moth*, *bajra*, *til*, and *gwara* are the autumn crop for *tibbi* lands, *moth* sown by itself being by far the most common. In the level loam lands, *jowar* or *chari* with *urd* or *mung* are grown. Cotton is almost unknown as a dry crop in the Powadh. *Gochani* is the great spring staple in the Powadh, but there is a good deal of gram and *jauchana*, and, in good years, of wheat.

Cultivation of well lands in Kaithal.

244. Well lands near the village site are known in the old Kaithal *tahsil* as *niai chahi*. In the Powadh such lands are largely double-cropped, maize or *jowar* being followed by wheat, *gochani*, or carrots. The maize is carefully manured. When cotton is sown in *niai* land it is often succeeded by carrots. On the outer wells *ek-fasli* (*sanwi*) wheat is the great crop. Cane, cotton, red pepper, and *jowar* are raised on both classes of wells, but cane grows best on the outlying lands. If sown in *niai chahi* land the juice is watery. There is some double-cropping even on the outer wells. On the whole the irrigated area fluctuates little from year to year. *Jowar* is the only important *kharif* staple usually grown in well land which can often be raised without watering. In the Andarwar the *kharif niai chahi* crops are *jowar*, *bajra*, and sometimes cotton. There is no cane

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Cultivation of well lands in Kaithal.

or maize in this circle. If a *zamindar* grew cane, he would have to sacrifice his wheat, for with such a scanty rainfall, the bullocks could not work the cane mill, and keep the wheat alive at the same time. Maize is not grown because of the difficulty of protecting it from wild animals, and because the straw is of little value as fodder. *Bajra* is usually followed by wheat, *jowar* by wheat, carrots, or tobacco, and cotton by carrots or tobacco. But there is less double-cropping in the Andarwar than in the Powadh; and in some even of the good villages there is little or none. The outer wells are cultivated on the *ek-fasli* system described in para. 240. The *kharif* crops are rarely watered. In six years an outlying well field would probably yield three unirrigated autumn crops (*jowar* or cotton), one unirrigated spring crop (gram), and two irrigated spring crops (wheat). This is one reason why the average watered area in the Andarwar falls so far below the recorded irrigation. The hard red wheat of the Andarwar has a great local reputation. The well cultivation in the Kaithal Naili is of the same type as in the Andarwar; but there is even less *kharif* irrigation. In illustration of the above remarks it is worth while to give a detailed analysis of Powadh and Andarwar well crops. In the following table the distribution of the average irrigated area of four years 1883-84 to 1886-87 among the various crops is shown :—

CIRCLES.	Distribution of crops in acres per well.														Recorded chahi area per well.
	Cane.	Cotton.	Maize.	Red pepper and Vegetable.	Jowar and chari.	Bajra.	Other crops.	Total kharif.	Wheat.	Carrots.	Other crops.	Total rabi.	Total both harvests.		
Powadh ..	·7	·8	1·0	·2	·5	..	·3	3·5	4·3	·4	1·0	5·7	9·2		11
Andarwar ..	..	·3	..	..	1·0	·2	·1	1·6	6·5	·5	1·3	8·3	9·9		16·2

The cultivation of well lands in the Pehowa Bangar and Naili is very similar to that in the Andarwar Circle, as the following statement showing the distribution of irrigated crops in 1883-84, when the wells were strained to the utmost, will show :—

CIRCLE.	Area watered per bucket.	Distribution of crops in acres.					Area watered per bucket.	Distribution of crops in acres.					Total area irrigated in both harvests.	Recorded chahi area per bucket.
		Cane.	Cotton.	Maize.	Toria.	Other crops.		Wheat.	Barley.	Post.	Tobacco and vegetable.	Other crops.		
Bangar ..	1·7	..	0·3	0·3	0·2	0·9	8·7	6·0	1·5	0·2	0·8	0·2	10·4	9½
Naili ..	2·8	..	0·2	0·2	0·1	1·6	8·3	6·7	0·6	..	0·8	0·2	10·4	9

Cultivation of canal irrigated lands in Kaithal.

245. The canal cultivation in the south of the Bangar and Nardak is poor. Cotton, indigo, and coarse rice are the chief *kharif* staples, but the cultivation of cane is spreading. Wheat

is the principal *rabi* crop, but gram and *gochani* are also largely grown. Though the supply of manure is abundant, it is only used for cane. Indeed the people have much to learn as to the means of getting the most out of canal irrigated lands.

Cultivation of sailáb lands in Kaithal.

246. Three-fourths of the *sailab* crops in the Kaithal, and four-fifths in the Pehowa, Naili belong to the spring harvest. Gram alone or mixed with wheat accounts for three-fifths and wheat for above one-fifth of the *rabi* crops. In a really good year the gram is splendid, and wheat in the flooded *kat* of the Kaithal Naili is occasionally as good as well irrigated wheat elsewhere. But a really good season in the Naili occurs but rarely. The most important autumn crop is coarse rice, of which three varieties, *santhi, dhaulu,* and *chalaka* are grown.

Sugarcane.

247. *Sugarcane*—The principal varieties sown are *Surta* or *Sotha,* with a long, soft, thick, white cane; the best of all, but somewhat delicate, and especially fancied by jackals. *Lalri* with a hard, thin, red cane; very hardy, and will not spoil even if the cutting be long delayed; but not very productive of juice. *Merathi* with a thick, short, soft cane, and broad leaves: it is very productive, but requires high cultivation, and suffers from excess of rain; it is not much grown. *Paunda,* a thick sweet variety; grown near the cities for eating only, as its juice is inferior. Cane grows best in fairly stiff loam, and worst in sandy soil. It likes abundant rain, and will stand a good deal of swamping, though too much makes the juice thin. It is occasionally grown in flooded land without irrigation; but the yield is poor and precarious. Its cultivation is far more laborious than that of any other staple. The land must be ploughed at least ten times, and worked up to the finest possible condition. The *zamindars* say:—*Gehun bisi, ikh tisi, i.e.,* plough wheat 20, and cane 30 times, but that is a counsel of perfection. The more manure given the better the yield; and it is never sown without. If the soil is impregnated with *reh,* the juice becomes watery, and yields but little sugar. Cane is occasionally grown a second year from the old roots and is then called *munda.* The yield is inferior. A full account of the cultivation of cane and the manufacture of *gur* is given in paras. 444-447 of Mr. Ibbetson's Settlement Report.

Young sugarcane is attacked, when about a foot high, by a worm called *kansua,* especially if the east wind blows. A smut called *al* also attacks it under the same circumstances. Mice do much harm; and also white ants and frost. The *kolhu* or native sugar mill is now being superseded by the Behea mill with iron rollers.

Cotton.

248. *Cotton*—No varieties of cotton are recognised by the people. It grows best in stiff loam; worst in sandy soil. It is better, if possible, to grow it by the aid of rain alone, and without irrigation, after sowing at any rate, till the rains are over. The more manure the better; but it often follows sugar, when

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Cotton.

no fresh manure is given; and in the Nardak it is grown without manure. As it can be grown without manure it is a favourite crop on outlying (*jangal*) wells. On the canal it is sown a full month earlier than elsewhere, as the ample supply of water enables the cultivator to make the land moist enough before sowing to carry it through till the rains. The ground is ploughed twice and the *sohaga* used; the seeds are rubbed in cow-dung to prevent their sticking together, and sown broad-cast. When the two seedleaves appear it is weeded, and twice again after that; the saying being—

"*Naulai nahin dopatti*"
"*Kya chugaoge kupatti.*"

"If you don't weed when there are two leaves, you will pick nothing." When it begins to flower it especially wants water, which must be given if necessary; for if it dries, and especially if the east wind blows at the same time, the flowers fall off and the pods don't form. It generally gets watered again with the other crops which are sown among the plants.

The picking is done gradually as the pods open. It is performed by the women of the house when they are not secluded; otherwise by the poor women of the village who take $\frac{1}{12}$ of the pickings in the earlier pickings when there is plenty of cotton, and more up to $\frac{1}{5}$ as less and less remains to pick. The last gleanings are left for the poor. The cotton as picked is called *kapas*, and is passed through a small hand-mill (*charkhi*), consisting of a wooden roller revolving in contact with a very small iron roller, the latter nipping the cotton and drawing it through, and so tearing it off the seeds (*binola*) which are left on the other side. The *kapas* consists of about a third cotton and two-thirds seeds. The cotton thus ginned (*rui*) is scutched (*pinna, dhunkana*) by the *pumba* or *teli* with a large double-stringed bow (*pinan, dhunaka*) hung from a flexible bamboo, the strings of which he twangs violently with a heavy plectrum of wood (*tara*), and the vibrations toss up the filaments and form them into a fleece, leaving the dirt at the bottom. For this he takes the weight of the cotton in grain. The women spin the cotton and give it to the weaver to weave, paying him one rupee for weaving about 60 yards. After the cotton is picked, the cattle are turned into the field to eat the leaves, and the dried stem (*bansati, banchatti*) are cut down and used as withies for various purposes, or for fuel. The seeds are a valuable food for cattle, as they are very full of oil. Cotton is especially liable to the *al* smut, and to attacks of caterpillars, and of a red worm in the pod.

Maize.

249. *Maize*—Two sorts of maize are grown; the *pili* or early yellow maize, and *dhauli* or late white maize. The former has the better grain, and the latter is the more valuable and ripens fifteen days later. Maize must have plenty of

Maize.

water and must have at any rate a little *fresh* manure, even if sown after sugarcane. It grows best in light soils and well in sandy ones. It will not grow in very stiff soil. The ground is carefully dressed and the seed sown broadcast. It is weeded on the 10th, 22nd, and 35th day after sowing, or thereabouts. It cannot go a month, and should not go more than three weeks, without water; and it is only in good years that it need not be irrigated. If it once dries up, no after-watering will save it. A little early maize is often grown as fodder for the cattle; it produces hardly any grain. The maize is cut down and the cobs (*kukri*) picked off, stripped, dried in the sun, and beaten with sticks to separate the grain. The unripe cobs (*bhuta*) are often roasted and eaten. The stalks (*karbi*) are good fodder, though not good as *jowar*. Maize suffers from a worm in the knot of the stalk, and especially from pigs and jackals. In Indri maize is an important crop on well (para. 240) and *sailab* lands (para. 241). In Kaithal its cultivation is mostly confined to well lands in the Powadh, but a little is grown on *chahi* lands in the Bangar and Naili circles of Pehowa.

Fine rice.

250. *Rice of all varieties*—Rices are divided into two well-defined classes; the fine rices, varieties of *oryza sativa*, the grains of which cook separate, and which are known to the people under the generic name of *ziri*; and the coarse rices, varieties of *oryza glutinosa*, the grains of which agglutinate when boiled, and of which the principal sorts are *munji* and *santhi*. The *ziri* proper is a small rice with a short straw; the principal varieties are *rumali* and *ramjamni*, the latter of which has a particularly hard fine grain. *Sunkar* and *ansari* are coarser rices, chiefly grown where there is fear of too much water, in which case their long straw gives them an advantage. Rice grows only in stiff soil. It is usually grown in lowlying *dakar* so as to take advantage of the drainage water; but if the water-supply is sufficient, the best rice is grown on fine stiff soil on a slope where the water is perfectly under control. The seed beds are ploughed four or five times and carefully prepared, manure is spread on them, and the seed sown broad-cast and very thickly on the top of the manure. More manure is then spread over the seeds, and the whole is watered. Four days after they are again watered, and after the fifth or sixth day, they must be kept wet till they are ready to plant out. The rice field is ploughed twice, and such manure given as can be spared. It is then flushed with some three inches of water, and a *sohaga*, toothed if there are weeds, is driven about under water (*garh* or *gahan dena*). If the weeds are obstinate, the plough must be used again under water. When the *sohaga* has worked up the mud into a fine slush, *Jhinwars* and *Chamars* take the seedling (*podh*) in handfuls (*juti*) and plant them one by one in the water pressing in the roots with their thumbs. An acre will take 500 to 600 *jutis* which will cost, if bought, Re. 1-4. It will take ten men to plant it in a day, and they get 2½ to 3 sers of grain each daily.

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Fine rice.

The field is weeded once at least. At first the whole field must be kept under water continuously; for each seedling throws out five to ten new shoots, which cannot make their way unless the ground is pulpy, and it is on the abundance of these shoots that the crop depends. The water must not be more than 6 inches deep, or the shoots will be drowned before they get to the air, and it must not be changed, as it would carry away all the strength of the manure and the soil. When the ears once begin to form, the ground must be kept well wetted, but not too slushy, or the plants will fall. If the crop is wholly under water for more than four days, it dies. The reaping must be done directly the grain is ripe, or it will fall out of the ears into the water. Thus hired labour is a necessity, and the payment is 5 or 6 sers of unhusked rice. If the water is deep and the plants, as cut, have to be put on bedsteads to keep them out of the water, the reaping is slow: otherwise the same as other small cereals.

The rice is thrashed in the ordinary manner; but the grain has to be husked in the *okal*. Standing rice is called *dhan*, as is the unhusked grain, in contradistinction to husked, *chawal*. The husking is generally done by the women of the house. If done by a labourer, he returns 18 sers of *chawal* from every 30 sers of *dhan*, keeping about 2 sers of good rice and as much of broken bits which he will grind up and eat as bread. The rest is husk, which is useless. The straw (*purali*) is very poor fodder, and is used largely for bedding for cattle, and for mixing with manure, or is even ploughed in fresh. But it is also given to cattle to eat. Rice suffers much from *khad* or *kokli*, apparently aquatic larvæ or other animals that eat the young sprouts. Water birds, too, play terrible havoc with it when it is ripening. If the whole plant dries up, it is called *malain*; if the grain only, *patas* is what is the matter with it.

Coarse rice.

251. Coarse rice is of three kinds, *chalaka*, *munji* or *dhaulu*, and *santhi*. *Chalaka* is grown to some extent in the Naili. It is an intermediate variety between *ziri* and ordinary coarse rice, has a white grain with a broad husk of a purplish red colour at the tip, and a longish beard of the same colour. The peculiarity of *dhaulu* is that it cannot be drowned out, the straw lengthening as the water deepens. It is therefore sown in spots liable to flooding. It will stand two feet deep of water; and if the ripe plant falls into the water, the grains do not fall out as they do with *ziri*. It has a larger grain than *santhi*, from which it is also distinguished by the fact that the grain stalk, when the seed is ripe, separates itself from the sheath. The grain of *santhi* has a black husk, and ripens within the sheath. It is sown in Sarh earlier than any of the other kinds, and its peculiarity is that it ripens within an extraordinarily short time (nominally 60 days, hence its name) from the sowing; it is sown all over the Nardak, and generally wherever there is no irrigation, as the rains will usually last long enough to ripen it.

Coarse rice.

Huen Tsang noticed its quick growth with admiration when he visited the Nardak 1,500 years ago. *Santhi* has a short straw and does with but little water, it being sufficient if the soil is thoroughly moist after the shoots are once up. The young shoots are liable to be eaten, and if the water gets very hot they will sometimes rot; but the plant is wonderfully hardy, and when the stalks have once grown up, hardly anything hurts it. Both *dhaulu* and *santhi* are sown at once where they are to grow. After one or two ploughings cattle are sent in to the water to walk about and stir up the mud, or the *gahan* or toothed *sohaga* is used under water. The seed is sown broadcast on the *gadal* or fine mud. No manure is used nor is the crop irrigated. The *purali* or straw is better fodder than that of *ziri*, but still not good. The coarse rice forms a staple food of the people, the fine rices being sold and seldom eaten by them.

Jowar and *chari*.

252. *Jowar* and *chari*—There are two varieties of *jowar*; the *pili* or *alupuri*, which gives a sweet large grain, but is delicate, and the *daul*, which is very hardy. *Jowar* grows best in medium loam, and is not grown at all in very sandy soil. It is seldom either manured or irrigated; but it is grown on well-land in the Andarwar circle of Kaithal and watered, if necessary. Throughout the Kaithal *tahsil* it is a very important crop and is usually grown for grain mixed with *urd* (see para. 243). The land is ploughed two or three times, and, if very dry, a *sohaga* is passed over it. The seed is sown broadcast,—if grain is wanted, very sparsely (*chhida*), the plants growing large and strong, and yielding fine heads of grain; if fodder is the object, very thickly (*sanghni*), the plants growing together with thin stalks, giving little grain, but an immense deal of fine sweet fodder. If sown for grain it is weeded once at least—twice, if possible; and small pulses are often sown with it. When the crop is cut, the heads (*tasri*) are picked off and the stalks (*chari*) stacked for fodder. The finest heads are selected for seed and thrashed with sticks, and the others thrashed in the ordinary way. The seed heads are covered with a down which irritates the legs of the labourers. If the fodder crop in any field is very inferior, from late sowing or scanty rains, it is cut green, and is then called *chib*. *Jowar* suffers from worms in the *gaba* or bud; and a worm also eats the stalk, which then turns red and hollow inside, and no grain forms. But the plant is exceedingly hardy; and if there is plenty of rain, hardly anything hurts it. It is said to exhaust the soil more than most other crops. Most of the bread eaten by the people during the cold weather is made of *jowar* flour.

Bajra.

253. *Bajra*—*Bajra* is little grown in Panipat or Karnal, but is, after *jowar* and gram, the most important staple in the Kaithal *tahsil*, where it is usually sown mixed with *mung* (para. 243). In the Andarwar circle it is often grown on well lands (para. 244). It thrives best in sandy loam such

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Agriculture and Arboriculture.

Bajra.

as is found in the S.-W. of the Kaithal Bangar. It is sown much earlier than *jowar*. The mode of cultivation is just the same as for *jowar;* but it is always sown exceedingly sparsely, and some small pulse is generally sown with it, and grows between the plants. The stalks are called *dandar*, and are poor fodder compared with *chari*. In the Bangar villages of Kaithal, however, the *bajra* stalks are carefully stacked and are sometimes preserved for years, and are given to the cattle chopped up with green fodder, or even with the *ata* of gram (para. 243). If rain falls on the flower (*bur*) it washes the pollen off; but hardly anything else affects it.

Mandwa.

254. *Mandwa*—No varieties are recognized. It is grown in fairly stiff soil, but chiefly in the Khadir, and there only in small quantities. It is sown in seed beds carefully dressed and manured. The seedlings are then planted out in land which has been twice ploughed, and dressed with the *sohaga*. It is watered once, or twice if the rains are late, and weeded once. The heads ripen slowly, and the ripe heads are picked off and the grain beaten out. The *bhus* is very bad fodder, and is generally burnt as it stands, or grazed down. The flour is used for bread, but is very indigestible; but it has the advantage that it may be eaten on fast days, as it is plucked, not reaped like other cultivated cereals. It is the *ragi* of southern India. In dry seasons its cultivation as a food crop is largely increased, it being put in fields intended for *ziri* which cannot be planted out owing to the drought. A poor variety is known as *mandwan*.

The *kharif* pulses.

255. It is very difficult to state with any accuracy what the area under the *kharif* pulses is, as they are usually sown with *jowar, chari,* or *bajra*. In the Kaithal Powadh, however, *moth* is commonly sown alone. It is sown in light or sandy soil. The ground is ploughed twice over, and the seed sown broadcast, and neither weeded, manured, nor irrigated. The *bhus* yields the best fodder of all the *kharif* pulses, but it cannot be stored, as it only lasts for one year. *Moth* with the grain unthrashed is a valuable fodder. The seeds of *moth*, *urd*, and *mung*, when husked and split, are called *dal*, and eaten largely by the people, generally boiled.

Urd grows in stiffer soil than *moth*. The *dal* is of the finest description, but the *bhus* is inferior to that of *moth*.

Mung is almost always sown and reaped with *jowar*, unirrigated *maize* or *bajra*, chiefly with the latter. The *bhus* is not so good as that of *moth* or *urd*, but is still very good indeed. *Moth, urd,* and *mung* are very apt to be ruined by over-saturation in the Khadir.

Gwara is a pulse cultivated in much the same manner as those above mentioned. It is grown for cattle only, the grain is boiled, and given as a fattening food to bullocks. Or it is coarsely ground and given dry. The *bhus* is worthless; but

the green plant is cut and chopped up and given to bullocks. It grows only in light soil, and is sown with the first rains, and always alone.

Til.

256. No varieties of *til* are recognized. It must be grown in good stiff soil; and the soil must be new to give a good crop, which is probably the reason why it is chiefly cultivated in the Nardak where virgin soil abounds. It is generally sown with *jowar* or *bajra*. When the plants are cut, they are put up on end to dry. As they dry, the pods open, and the seed is then shaken out. The stems (*dansra*) are of no use. The seed is taken to the oilman, who returns two-fifths of the weight in oil, keeping the oil-cake (*khal*) which he sells. The oil is good for burning, and is the best of all oils for purposes of the kitchen. *Til* is very subject to attacks by catterpillars (*al*). And if it once dries up it never recovers.

San and *sani*.[1]

257. *San* is sown, seed by seed, on the edges of the sugar-cane field, or in rows among the cotton, and takes its chance with them. It is cut in Katik. The plants dry for two or three days, and are then, or when wanted, weighted down under water in the pond or in a well. They soak for 40 to 60 days in the cold, or 20 days in the hot weather. The fibre is then stripped off, washed thoroughly, dried, and is ready for use. The sticks are called *sankokra*, and are useless. The fibre is especially used for the *lao* of the well, as it is very strong, and stands water without rotting. It is also used for ropes in general; but does not wear so well as *sani*.

Sani is sown in the best of soils only. The land is ploughed once, the seed is sown broadcast, and no further trouble is taken with it. It is sown in Sarh and cut in Katik. It is dried and then steeped for 8 to 10 days in the cold, or half that time in the hot weather. The stems are then washed, dried, and put away whole, the fibre being stripped off as wanted. It makes the best ropes of all, but will not stand constant wetting. The sticks are called *sunki*, and are useless.

Wheat.

258. *Wheat*—It forms the chief spring staple of the Jamna Khadir irrigated portions of the tract. The principal varieties are the *pila*, the best of all wheats; *kunja*, with a long straw, and full ear, of somewhat inferior grain; *jogia*, a short wheat of good quality; and *lal* a very hardy and productive wheat of good quality, which does with less water than the others, and is sown in the inferior soils and in the unirrigated portions of the tract. There is also a beardless variety called *mundli*. Wheat and gram are very commonly sown together, especially in a year when failure of rain in September prevents the sowing of gram alone, but rain falls in October.

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(1) Mr. Baden-Powell, in his *Punjab Products*, warns the reader against confusing *san* and *sani*. He has, however, exchanged their names. *Sani* is the leguminous Crotalaria and *san* the malvaceous Hibiscus.

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Agriculture and Arboriculture.

Wheat.

Wheat will grow in almost any soil, except the very stiffest where barley takes its place; and if there are good Christmas rains (*mahawat*) a fair crop may be got without irrigation. It is not grown alone as an unirrigated crop in the Indri Nardak or anywhere in Kaithal except in the Powadh and the flooded parts of the Naili. The soil is worked up in the most careful manner during the rains; and the oftener it is ploughed the better. It is generally sown after cane or maize, when no fresh manure is added; otherwise manure is almost always given, and the *Malis* and *Rains* use a top-dressing of *rehi* of some 12 or 15 maunds to the acre, when the plant is six inches to a foot high. The field is dressed laboriously with the *sohaga*, and the seed sown broadcast. It is watered 20 to 30 days after sowing, according to the original wetness of the soil; and then, at intervals of a month, three times more on the canal, four times more in the Khadir. It is weeded after the first watering; and once again, in the Khadir at any rate, where the *piazis* are numerous. It ripens suddenly; and hired labour is generally needed for the harvest, the labourers getting 5 to 7 sers a day in the ear. The *bhus* is very fine fodder. The grain of wheat alone is not much eaten, it going to the *Bania*, while the people eat the mixed grains mentioned below. Wheat is very liable to smut, often called *dhaunchi* in this case, and rust (*kungi*). Sometimes the east wind in dull weather will make the ears curl and twist up; and this is called *maroria*. Late frost does it much harm if it has been sown so early that the ear is then forming, but not otherwise. Further information on the cultivation of wheat on well lands has been given in paras. 240 and 244.

Barley.

259. Barley sown alone is not an important crop in Karnal. It is the hardiest of all the small cereals, will grow in any sort of soil, and will stand either excess or deficiency of water. It may be sown later, too, than any other of the spring crops; and men may be seen sowing barley at the very end of the season on the edges of a swamp which is still too wet to plough, with the intention of ploughing it in as the soil dried. The limit to the sowing is expressed by the proverb, "*boya Poh, diya kho,*" "sow in Poh, and you lose your seed." The field is ploughed two to four times, the *sohaga* is passed over it, and the seed sown broadcast. Manure is given if there is any to spare, which there seldom is, and water is given if the needs of the other crops allow of it. It is seldom weeded unless the weeds are very bad. The grain is much used by the people for bread; and the *bhus* is admirable fodder. Barley sometimes suffers slightly from smut; but nothing else seems to touch it, wind and weather of course excepted.

Gram.

260. *Gram*—It is the great *barani Rabi* staple in the Indri Bangar, the Karnal and Indri Nardaks, and throughout Kaithal, except in the Powadh. It grows best in stiffish soil. It is generally sown broadcast, and is often mixed

Gram.

with wheat or barley. In the very stiff rice fields the *dakar* is ploughed up once after the rice is cut, so as to break it up into large hard clods, in the crevices between which the gram grows. Lighter land is ploughed two or three times, and is sown more sparsely than stiff soil. No manure is used; and irrigation rots the plants, so that the soil should be very moist for sowing. If this is the case, and the Christmas rains are good, a fine crop is almost certain. Gram is never weeded. The grain is used as *dal*, and for bread; often in the latter case mixed with cereals. The *bhus* is admirable fodder. The young plant is used as a vegetable, the green seed is eaten raw, and at harvest time the plant is thrown on to a fire of grass, and the roasted seeds (*hole*) rubbed out and eaten. Either the phosphoric acid which the leaves deposit, or the down with which they are clad, is exceedingly irritating to the skin. The plant is exceedingly sensitive to frost; and a green worm called *sundi* attacks the seed, especially if the Christmas rains are late so that the ground is damp when the seed is forming.

Masur or *Masri*.

261. *Masur* is a small pulse, growing chiefly in the very light soils of the Khadir. The ground is ploughed twice, and dressed, and the seed sown broadcast, often mixed with barley. No manure is used; but it is irrigated if the labour can be spared. The grain makes very good *dal*; but the yield of fodder is insignificant.

Rabi oil-seeds.

262. It is difficult to say what the area under *sirsam* is as it is usually sown together with wheat or gram, often in rows (*ad*). It is largely grown in Kaithal, but the area fluctuates to an extraordinary degree with the character of the season. Two kinds are grown in the tract; the black, which is more hardy but less productive, and the yellow. It is grown chiefly for its oil, though the green plant is much used as a vegetable, and as green meat for cattle. If sown separately, it is neither weeded nor manured, and seldom watered. It ripens in Phagan, the earliest of all the *rabi* crops except *toria*; and the plants are picked out from the crop with which they are growing. The seed is called *bhakar*, and yields an oil which is the finest of all oils for burning, and is also good for cooking purposes, though inferior in this respect to that of *til*. The oilmen return one-third of the weight of seed in oil if yellow, and one-fourth if black, and keep the oil-cake. The *bhus* is called *turi*, and is worthless. The plant is subject to the attacks of a gregarious red caterpillar (*al*), and is very sensitive to frost.

Toria is an oil-seed, one of the *brassicas*, deriving its value from the rapidity with which it ripens (see para. 237). It is sown in Bhadon and ripens in Poh; coming in just when oil is dear, and before the other spring oil seeds have been reaped. Hence the proverb—

> *Toria hal joria, urdon choti bel,*
> *Bhawen kitna bhagle, pakunga tere gel.*

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"The plough is yoked for the *toria,* when the *urd* creepers are already long. But hasten as you will, I will ripen along with you."

Methi.

263. ***Methi*** is a trefoil, used only as green fodder for cattle or as a pot herb. It is generally sown, sometimes with a little gram or *sirsam* mixed with it, between the cotton plants. Before the pods open, the ground is grubbed up with a hoe and the *methi* sown. It is watered the day after and again at intervals of 20 days or less as it needs a great deal of moisture. It grows very thick and close, and is cut green. It only yields one cutting.

Tobacco.

264. Tobacco is very generally grown in the villages, but mostly for private consumption only, except where local peculiarities are especially favourable.

The plant grows best in a nice loam soil neither too stiff nor too open. A *slight* saline impregnation improves the plant; and the water of bitter wells, or of the dirty village ponds, is best. Canal water is too pure. The land is ploughed 8 or 10 times, dressed most carefully, and laid out in ridges some 2 inches high and 8 inches apart, the seedlings being planted half way up the ridge on either side alternately and about 8 inches apart; for if water lies about the stem, it injures the plant. This is done in Magh or Phagan. They are then hand-watered with manure dissolved in water. Solid manure is generally used as a top dressing, as less is thus required. The dung of goats and sheep is the best, and old dry cowdung mixed with ashes. The field is watered every 10 days or so; and the hoe is then freely used so as to keep the earth about the roots open and the weeds removed. As the leaves grow they are sprinkled with *reh* or ashes to keep off insects and improve the flavour; and the flower-bearing pedicles (*gol*) are nipped off as fast as they appear. The plant is ready to cut in Jeth. The whole plant is cut in the morning, and left in the field for 24 hours to dry. Next day they are piled up and left to dry further. A hole is then dug and the plants are packed into it, covered up with *dhak* or *ak* leaves, and left to ferment for five to ten days. The leaves (*pat*) are then stripped and either tied up into hands (*juti*) or twisted into a thick rope. They are, if necessary, further fermented; and are finally dried and kept for use. When tobacco is wanted, the leaves are cut up and powdered with an equal weight of *gur* in a mortar.

Safflower.

265. *Karar* or safflower is usually sown very sparsely with gram or on the edges of the fields, seldom by itself. Only small quantities are sown. The soil requires little preparation and no further care. When the flowers open, the women pick out the petals; three days later they repeat the operation; and again a third time after the same interval. If hired they take a quarter of the picking as their wages. The petals are bruised the same day in a mortar, rolled between the hands, and pressed slightly into a cake. Next day they are rolled again, and then spread in

Safflowers.

the sun for two days to dry, or still better, one day in the sun and two days in the shade. One ser of petals will give a quarter of a ser of dry dye. Any delay in the preparation injures the dye. The dry dye is called *Kasumbh*, and is the yellowish red colour with which the clothes of the village women are ordinarily dyed. The dyer (*nilgar*) has the cloth and dye brought to him, retains one-fifth of the dye as a perquisite, and is also paid for his trouble. A bitter oil is expressed from the seeds, which is used for burning only. Forty sers of seed will give 3½ sers of oil. *Bakhar* is a general name for the oil plants (*sirsam, toria, karar, alsi, til,* and *sonh* or *taramira*).

Mixed crops.

266. The mixed crops proper are confined to the spring harvest, for the small pulses so commonly grown among the huge millets in the autumn are reaped and thrashed separately. In the spring, however, mixed gram and barley (*jauchana* or *berra*), wheat and gram (*gochani* or *berar*), wheat and barley (*goji*), are commonly sown and reaped together, especially the two former. This custom has brought on the Indian cultivator much very undeserved hard language. It is true that the mixed grains have no export value; but then he does not grow them for export, or even, as a rule, for sale. In one village the people complained that their *banias*, to whom they were in debt, would not let them grow mixed grains. The peasant devotes his best soil, his manured and irrigated fields, sown at the proper season, and when neither too wet nor too dry, to the single grains which he will sell to his banker. In the remaining land he grows mixed grains which he eats himself, liking the varied flavour, and especially finding the nitrogenous pulses an indispensable substitute for the animal food which religion or poverty forbids to him. Besides this, the three crops which are sown together flourish under different circumstances; and a season which destroys one will very likely suit the other, and so gives a fair yield in the end. If it is rather late to sow gram alone, he sows gram and wheat; and if the soil appears very wet, he will sow gram and barley. The damp will suit the barley, while if there are no Christmas rains it will save the gram. The frost which will kill the gram will spare the others; while the dew on the gram leaves will help the wheat, and the wheat and barley will shelter the young gram from the sun.

Rotation of crops.

267. Such rules as are observed by the people regarding the rotation of the crops are, of course, founded upon experience only, but it has proved an excellent guide. The soil in which the spring crops are grown is called *dathoi* or *bhadwar*, according as it has or has not borne a crop in the autumn immediately preceding; the former name from *datha* a stalk, as the stalks are generally left in the hurriedly prepared ground; the latter from Bhadon, the month in which they begin to plough the field. In double-cropped land the nature of the crop to follow is chiefly determined by the date at which the autumn crop is cut, and the interval thus afforded for the preparation

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Agriculture and Arboriculture.

Rotation of crops.

of the soil. Thus maize, which is cut early and usually manured, is often followed by wheat. Cotton is frequently followed by cane, which is also often sown after *jowar*, manure being added. Cotton is often sown after cane or wheat; and wheat will often follow cotton or cane, with a season's interval. *Jowar* or *chari*, which is very exhausting, is seldom followed by any spring crop. Rice, except in *kalar dahr* soils, where nothing but rice is sown, is almost always followed by gram or mixed grains; the stiff wet soil being in many cases incapable of producing anything else, while the pulse following the cereal does not seem to suffer, judging from the crops often produced. And in the swampy canal villages, where the whole area is often too wet to grow anything but rice, barley is perforce sown in every field in the spring, not because there is much hope of a tolerable grain crop in the swampy fields, but because some sort of fodder must be had, and rice straw is of but little use. Manured land is never allowed to rest more than one season at a time, while the highly-manured land close to a town will yield, with the help of vegetables and *china*, three or even four crops in a year. Except in rice land and swampy villages, land is seldom double-cropped without manure. Further remarks on this subject will be found in paras. 238-240, and the following may be taken as embodying the more usual rotation on ordinary dry loam soils and on wells lying outside the manured belt (*gora*) round the village site :—

(a).—Rotation of crops on unirrigated loam soils.

Circle.	Rabi 1887.	Kharif 1887.	Rabi 1888.	Kharif 1888.	Rabi 1889.	Kharif 1889.	Rabi 1890.	Kharif 1890.
Bangar and Nardak.	Gram.	Chari, or jowar and urd, or urd.	Fallow.	Fallow.	Gram.	Chari, or jowar and urd, or urd.	Fallow.	Fallow.
Khadir.	Wheat, or wheat and barley, or barley.	Chari, or jowar and urd.	"	"	Wheat, or wheat and barley, or barley.	Chari, or jowar and urd.	"	"

(b).—Rotation of crops on outer (jangal) wells.

Rabi 1887.	Kharif 1887.	Rabi 1888.	Kharif 1888.	Rabi 1889.	Kharif 1889.	Rabi 1890.	Kharif 1890.
Wheat (irrigated).	Fallow.	Gram (dry).	Fallow.	Wheat (irrigated).	Fallow.	Gram (dry).	Fallow.
Wheat (irrigated).	"	Wheat (irrigated).	Chari (dry).	Fallow.	"	Wheat (irrigated).	"
Wheat (irrigated).	urd (dry).	Fallow.	Fallow.	Wheat (irrigated).	"	Gram (dry).	"
Wheat (irrigated).	Cotton (dry or irrigated).	"	"	Wheat (irrigated).	Chari (dry).	Fallow.	"

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These tables were originally prepared for Indri, but they apply pretty generally. Of course the orthodox twelve months fallow in the case of unirrigated loam is much oftener broken into in the Khadir than elsewhere.

Average yield. Production and consumption of food grains.

268. The three tables below show the estimates which were used by Mr. Ibbetson and Mr. Douie to calculate the value of the gross produce of the principal staples for purposes of assessment in the Settlements of 1880 and 1888. The latter framed no estimates for crops, such as cane, cotton, &c., for which *zabti* rents are paid. Further information on the subject will be found in the printed Assessment Reports.

A.—YIELD IN SERS PER ACRE OF CROPS IN PANIPAT AND PARGANA KARNAL.

	IRRIGATED.					UNIRRIGATED.					MOIST.	TOTAL.				
		Bangar.		*Khadir.*			*Bangar.*		*Khadir.*				*Bangar.*		*Khadir.*	
	Nardak.	Karnal.	Panipat.	Karnal.	Panipat.	Nardak.	Karnal.	Panipat.	Karnal.	Panipat.	Karnal Khadir.	Nardak.	Karnal.	Panipat.	Karnal.	Panipat.
Cotton ..	186	230	280	239	352	88	125	161	134	215	144	123	224	270	228	340
Sugarcane ..	..	625	843	702	887	..	347	450	354	400	250	..	606	843	689	828
Maize ..	392	492	..	510	612	155	181	..	208	208	127	299	478	..	467	555
Fine rice ..	342	571	574	436	461	178	306	390	303	347	..	231	565	571	432	429
Coarse rice ..	320	324	..	346	..	142	238	..	259	..	276	147	322	..	323	..
Jowar ..	159	163	186	157	177	113	145	144	112	107	107	116	155	166	138	152
Bajra ..	160	162	163	123	135	113	129	130	114	112	109	118	140	141	117	118
Moth ..	..	98	96	78	81	..	80	73	56	56	54	..	84	84	67	70
Wheat ..	414	496	598	363	489	218	290	322	259	289	192	366	490	593	382	454
Gram ..	433	546	606	390	440	225	374	447	316	374	336	240	476	563	360	418
Barley ..	..	475	482	351	..	..	320	351	245	..	189	..	454	479	283	..
Wheat and gram ..	..	421	495	386	443	..	356	380	250	296	227	..	401	476	347	407
Barley and gram ..	341	366	..	380	..	204	301	..	261	..	244	210	347	..	305	..
Masri ..	..	..	..	104	..	..	..	..	91	..	63	..	..	..	75	..

B.—YIELD IN SERS PER ACRE OF IRRIGATED CROPS IN KAITHAL & PARGANA INDRI.

Tract.	Assessment Circle.	Maize.	Ziri[1].	Wheat.	Barley.
INDRI ...	Khadir ...	500	480	460	500
	Bangar ...	600	480	540	600
	Nardak ...	560	480	500	540
KAITHAL ...	Powadh ...	600	400	480	480
	Andarwar ...	500	...	520	560
	Bangar Pehowa,	520	...	480	520
	Naili Kaithal ...	500	500	440	480
	Naili Pehowa ...	500	600	480	500

(1) The estimates for *ziri* are too low.—J.M.D.

Chapter IV, B.

Live-stock.

Average yield. Production and consumption of food grains.

C.—YIELD IN SERS PER ACRE OF UNIRRIGATED CROPS IN KAITHAL & PARGANA INDRI.

Tract.	Assessment Circle.	Maize alone or mixed with urd.	Coarse rice.	Jowar alone or mixed with urd, &c.	Bajra alone or mixed with mung, &c.	Wheat.	Barley.	Gram.	Wheat and gram.	[illegible]
INDRI ..	Khadir ..	280	240	100	100	200	200	240	200	240
	Bangar ..	280	240	160	140	200	200	240	200	240
	Nardak ..	320 [2]	240	100	120	..	200	240	200	240
KAITHAL ..	Powadh ..	..	..	160	100	200	200	240	220	160
	Andarwar ..	..	..	180	120	..	..	240	240	160
	Naili Kaithal ..	..	300	160	120	260	260	280	280	160
	Naili Pehowa ..	240	280	120	120	240	240	260	..	200
	Bangar Kaithal ..	..	240	200	140	..	200	240	240	160
	Bangar Pehowa ..	280	200	180	180	..	..	240	..	200
	Nardak ..	..	240	160	120	..	200	240	240	160

The average consumption of food per head has already been noticed in para. 94. The total consumption of food grains by the population of the district, as estimated in 1878 for the purposes of the Famine Report, is shown in maunds in the margin. The figures are based upon an estimated population of 6,10,927 souls. On the other hand, the average consumption per head is believed to have been over-estimated. A rough estimate of the total production, exports, and imports, of food grains was also framed at the same time; and it was stated (page 151, Famine Report) that some nine *lakhs* of maunds, principally wheat, were annually exported to Dehli and Ambala and about 312,000 maunds of wheat, barley, gram, *bajra* and smaller pulses imported from Patiala and Bhiwani.

Grain.	Agriculturists.	Non-agriculturists.	Total.
Wheat ..	613,432	794,823	1,408,255
Inferior grains ..	788,699	435,430	1,219,229
Pulse ..	788,699	430,530	1,219,229
Total ..	2,190,830	1,655,883	3,146,713

SECTION B.—LIVE-STOCK.

Live-stock.

269. Table No. XXII shows the live-stock of the district as returned in 1888-89. In a tract like the Nardak, where Rajputs predominate, and only a small portion of the area is under the plough, it will be readily understood that cattle-farming

(2) Maize in the Nardak is usually sown on well lands near the homestead but not watered (para. 240).

Live-stock.

forms no unimportant element in the means of subsistence. In the large Rajput villages, it may, in fact, be said that cultivation holds an entirely subsidiary position. The people look upon the manual labour of agriculture as to some extent derogatory, while the proudest of them thinks it no shame to tend his herds; the yield of their fields is eminently precarious, and only follows on the expenditure of labour and capital, while their cattle yield *ghi* and calves in the exercise of their natural functions. Thus the Nardak Rajput's chief agricultural care is to secure a plantiful supply of fodder from his *jowar* fields. The general area of the tract is a high flat slope from which the rain water runs off almost as fast as it falls; and what scanty grass does spring up, is eaten at once before it disappears under the burning heat of the sun. But every village is situated on a drainage line of greater or less magnitude; and in the hollows, where the earth is protected by the shadow of thick *dhak jangal,* grass grows with great luxuriance, and is both pastured and cut and stored for use in the hot weather. The hedges, too, which surround the cultivation, generally enclose a good deal of uncultivated land, and large blocks are often fenced off as grass preserves (*bir*). In these spots a plentiful crop of grass is to be found in fairly favourable seasons. Notwithstanding this, by the beginning of April the supply begins to run short, the pools in the *jangal* have dried up, and the mass of the cattle are taken away in large herds (*gol*) either to the *duns* of the Siwaliks, or, where the existence of friendly relations with the villagers renders it possible, to the riverain and canal villages. As soon as the first rains promise a supply of grass and water, these cattle return, accompanied by the herds of the canal and riverain tracts which the rising floods have driven from their homes, and often by those of the arid tracts of Hariana, where the season has been less favourable. Thus the cattle-farming capacity of individual villages depends not so much upon the actual area of pasture land as upon the extent to which that area is occupied by hollows and drainage lines. Many villages are compelled to fall back for pasture upon neighbours who have a smaller but more favourably situated area; and in some villages considerable sums are yearly paid as grazing fees to other communities. In Kaithal Jat villagers have as a rule broken up almost all their good grazing lands and often have to pay their Rajput neighbours for pasturage. Besides cattle, a large number of sheep and goats are pastured in the tract, chiefly by the non-proprietory community.

Horned cattle.

270. Kine or *dhenu,* consisting of buffaloes and cows, are kept by almost all villagers, and their milk furnishes the only animal food which they, as a rule, enjoy. In the Nardak they form the mainstay of the people; while in every village the surplus *ghi* produced forms a substantial addition to their income. Of the two kinds of kine the buffalo is infinitely the more valuable. If a villager loses his cow, he only grumbles a

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Live-stock.

Horned cattle.

little harder than usual; if he loses his buffalo, he sits down and cries. A female buffalo (*bhains*) is worth Rs. 40 to Rs. 100. After four years old she will give a calf every 18 months, to the number of seven or eight or even more. The heifers (*jotri, katri*) are not sold; but the steers (*jotra, katru*) are gelt and sold when some two years old to be used as pack-animals. They are called *jota* when grown up. The buffalo eats all the coarse swamp grasses which the cow will not touch, and which would otherwise be useless; and as long as they have a daily bath in the pond, are hardy animals. The cow (*gai*) is worth from Rs. 10 upwards. After four years old she will calve once in every twelve to eighteen months on the average, generally in Chait or Baisakh. She will calve about six times. The steers (*bahra, bachhra*) are gelt and kept for the plough as oxen (*bald*), or sold at three years old for from Rs. 15 to Rs. 20. The heifers (*bahri, bachhri*) are seldom sold unless they drop their young. No care is taken about the breeding of oxen, the bulls (*bijar, khaggar*) being simply the young bull calves let go on the occasion of a death. The buffalo bull (*bhainsa*) is sometimes chosen by a group of villages and let loose; but it is often let loose in the name of *Devi* or of the *Pir*, and these latter may be of any sort of breeding. Both sorts of bulls roam about the *jangal* and mingle with the herds at pasture.

Grazing and food.

271. The cattle are grazed in herds (*gol*) by herdsmen (*pali*), usually boys and lads, except in the Rajput tract where men go also for fear of attempt at theft. In the cold weather they go out as soon as the dew is off the grass, and return at sunset. In the hot weather they graze from dawn till 11 A. M. and from 2 till evening, returning to the village to drink in the middle of the day. In the rains they also graze for three hours before dawn, returning to the village to be milked. This last is called *pasar*, and has a great effect upon the milk, the cattle grazing more freely when not teased by heat and flies. The plough cattle often go for *pasar* both before dawn and after sunset in the rains.

The principal kinds of grass have been described in Chapter I. If the rains are good a splendid crop springs up.

Milk and butter.

272. A buffalo will give 6 to 10 sers of milk daily for eight months, and each ser will make a *chittak* of *ghi*; a cow will yield 3 to 5 sers daily for five or six months, but each ser will only produce half a *chittak* of *ghi*. The first milk after calving is offered to *Bhumia* and the Snake-god, or sometimes given to the beast herself to drink; otherwise the milk will turn bloody. The calf has all the milk for 10 days; on the 11th it has a rope put round its neck, and the owner begins to use the milk. The milk is boiled at night in a vessel calld *karhauni*, and a little sour curd (*dahi*) put in to turn it, which is called *jamana*. Next morning the milk is turned into a *jhauli* or churn, and the churn staff (*reyi, ravi* made of *kair* wood with four arms at the bottom) is

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Milk and butter.

put in, and a cover (*chakra*) put on through which the *reyi* passes. A string (*neta*) is wound round the staff, and it is spun alternately each way by pulling the ends of the string. This churns (*bilona*) the milk. The butter is skimmed off and put into a vessel. Its collective name is *tindi* or *naini*, and the butter-milk is called *lassi*, and is drunk. The butter is then melted, and the water with its impurities (*chhach*) being strained off, *ghi* remains. This is put into a vessel called *bara* till enough is collected to take to the *bania*, or as they express it, to change the *bara*. The word is probably from *Bar*, Saturday, as no *ghi* must be made from the Sunday's milk.

Cattle in Indri and Kaithal.

273. The following remarks on the number of cattle, and the profits derived from cattle-rearing and the leasing of pasture lands are extracted from the assessment reports of Indri and Kaithal :—

"The figures relating to cattle, other than plough oxen, in Indri include male and female buffaloes, bulls and cows, and calves of all sorts. The young male buffaloes are bought up by merchants from the Panjab. No *zamindar* in these parts would work his well with a buffalo. In the Khadir the number of cattle shown is 26,340, or about one head for every acre of waste. But while the cattle are numerous, they are small and of little value, for the grass in the Khadir is very poor. In the Bangar also we have one head of cattle to every acre of waste, and the grazing is of better quality than in the Jamna valley. In the Nardak, according to our lists, there are only 16,773 head of cattle to 37,542 acres of waste. I suspect this may be an understatement. But the area recorded as culturable waste, includes a good deal of land which might well have gone down as barren. The Indri Nardak is not a grazing tract to anything like the same extent as the Karnal Nardak with its Rajput population and huge area of waste. The Rors, who own about half the villages, are good cultivators, and rarely keep up much pasture land. But the Rajputs in the south, and the Jats in the east of the circle, depend a good deal on the profits of grazing, and there are one or two estates owned by strangers which are kept as grass preserve. Successive grass famines, to which the tract is terribly liable, have lessened greatly the number of cattle in the Nardak. In the drought of 1883-84, 922 milch buffaloes and 1,732 cows died in this circle alone, and the loss in the whole *pargana* was 2,828 buffaloes and 5,174 cows. On the most moderate computation, their value cannot have been less than Rs. 2,00,000, and if we put the total losses, including plough cattle, at three and a half lakhs of rupees, I do not think we would be guilty of exaggeration. That is more than twice the land revenue of the *pargana*. And the people must expect to suffer at least as severely once in every eight or nine years.

"The number of horned cattle in Kaithal[1] excluding plough bullocks is 1,46,582. These figures include draught oxen, cows, buffaloes, and calves of all sorts. Of the total 46,614 are milch cows, and 32,745 milch buffaloes. The circle details confirm in a

(1) The figures refer to the old Kaithal *tahsil* as it was constituted before 1889.

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Cattle in Indri and Kaithal.

striking way the truth of the opinion expressed in a former report that the number of cattle depends far more on the number of mouths requiring milk than on the amount of pasture land. There is little grazing left in the Powadh, and none in the Jangal,[2] yet the former circle has 10 head of cattle for every 16 persons, and the latter 10 for every 19. In the two grazing circles the proportion is 10 to 12 and 10 to 17, respectively. The Nardak pasture is better than the Bangar, and there is twice as much of it; but the Bangar having the larger population has the most cattle. It is usually assumed that the spread of cultivation has been accompanied by a decrease in the number of kine, and it is true that the *zamindars* assert this to be the case. But I have the results of the enumeration made at last settlement in the Bangar and Nardak, and it is worth while to put it beside the present figures :—

CIRCLE.	Detail.	Cows.	Buffaloes.
Bangar	Former ...	12,389	10,004
	Present ...	16,852	13,196
Nardak	Former ...	11,513	6,813
	Present ...	15,612	11,126

"I have assumed that the former figures excluded calves, otherwise the increase since last settlement would be incredible. Of course I do not pretend that either of the two sets of figures is minutely accurate, and probably mine are more correct than Captain Larkins'. But with these statistics before us we may well hesitate to believe that cattle have decreased. The crops grown yield a great deal of fodder, and, as I shall show presently, the want of grass has led the people to cultivate *jowar* more largely. In the circles where cattle are kept for milk and little *ghi* is sold, there are many more cows than buffaloes. But in the Nardak, Bangar, and Naili, the number of buffaloes does not fall very far short of the number of cows. Fine buffaloes are kept, and the Bangar Jat is especially good at rearing them.

274. "A milch buffalo is worth Rs. 50 or 60. It gives milk for 8 months in the year, beginning in June or July. Much of the milk is reserved for *ghi*, especially if the calf is a male. We may say generally that 7 sers of *ghi*, worth Rs. 3-8-0, is handed over to the *bania* monthly for 8 months in the year, while the owner keeps the buttermilk for the use of his family. In the four rainy months the buffalo eats only grass and the price obtained for the *ghi* is pure profit. But in the cold weather Rs. 2 monthly must be deducted for the cost of cotton seed and oil-cake. The owner of a good buffalo, therefore, realizes a profit of Rs. 20 yearly by the sale of *ghi*. The cows and bullocks reared in Kaithal are not to be compared with those bred in Hissar or the *Jangal* country. The cows are

(2) This circle has been transferred to Hissar.

Profits of cattle rearing.

worth Rs. 12 or 15 each and yield on the average 3 sers of milk daily for seven months in the year. A male calf is allowed a good deal of milk, but female calves are stinted, and this partly accounts for the poorness of the breed. The profits from the sale of *ghi* made from cow's milk may be put at Rs. 6 yearly. As a rule the *ghi* made during the week is handed over to the *bania* every Thursday, and on that day no *ghi* is made, and the owner's family can have fresh instead of sour milk. Male buffalo calves are brought up by Panjabi merchants at the age of 3 or 4 years, and are worth from Rs. 6 to 10 each. Banjaras from across the Jamna come every spring to buy the bull calves. They take them from 18 months to 3 years old, and the price varies from Rs. 4 to 12 or even more according to age and quality. The trade in hides and horns, of which Dehli is the centre, has become important during the past twenty years. In Kaithal it is in the hands of the butchers. The price fluctuates a good deal, falling very low in a famine year, but it may be put at Rs. 6 or 7 for a buffalo hide, Rs. 2 or 3 for a cow hide, 8 to 12 annas for a goat skin, and 3 or 4 annas for a sheep's skin. The *Chamars* still get the skins of all animals, dying natural deaths, but of course the increased value of hides has raised the price of the live-stock. Cow's horns are not sold. Buffalo's horns are worth about an anna a pair. In the Bangar and Nardak villages there are numerous flocks of sheep and goats belonging mostly to the butchers of Kaithal, Pandri, Panipat, Jindh, and Safidon. Land-owners of all castes, who are too poor to keep cows and buffaloes of their own, tend them. The herdsman is allowed the whole of the milk, and the increase of the flock is divided once a year. The butcher usually buys the *zamindar's* share and many of the sheep find their way into the Ambala Cantonment.

The following table, for the details of which I am largely indebted to the Rev. Mr. Carleton, who has been much in Kaithal during the last 30 years, is interesting :—

Detail.	Price in 1856.	Price now.
Milk per rupee	40 sers.	16 sers.
Ghi " "	5 "	2 "
Milch buffaloes	Rs. 15 to 30.	Rs. 35 to 70.
" cows	Rs. 6 to 10.	Rs. 12 to 20.
Bullocks broken to plough ...	Rs. 15 to 30.	Rs. 30 to 60.
Young male goats for food ...	Annas 4 to 8.	As. 10 to Re. 1-4.
Sheep for food	12 annas.	Rs. 2.
Buffalo hides	1 Re.	Rs. 6.
Cow hides	8 annas.	Rs. 2.
Goat skins	2 annas.	10 annas.

275. "Pasturage is sold in two ways. Either fixed charges per head of cattle are made or definite areas are let for lump sums. In the former case the usual rates are :—

Milch buffaloes	Annas 8
Cows	" 4
Weaned calves...	" 2

In the Nardak it is still quite common to collect part of the revenue by a *bachh* on cattle ; and when this is done the rate per head, excluding plough bullocks and unweaned calves, is from two to four annas. The community also realizes an anna per head and

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sometimes more for all sheep and goats grazed in village lands. The Superintendent has collected statistics for five Bangar and eight Nardak villages where he has ascertained with an approach to accuracy the lump rents realized for pasturage over areas exceeding 100 acres. The result is to show a grazing rent of about six annas an acre to be usual. We may assume that pasturage let in this way is above the average. I am inclined to take the rental value of ordinary grazing land in the Nardak of Kaithal as about four annas an acre and, as a good deal of bad land has been classed as *kadim*, perhaps we should put it lower for assessment purposes."

Diseases of cattle.

276. The chief diseases to which cattle are subject are as follows:—

Garar or *garwa*.—This is the most fatal of all, especially to buffaloes. The mouth and nose run, the tongue and throat swell, the papillæ of the tongue stand erect, and animal dies in a few hours, apparently suffocated. *Rora* or *paira*.—The feet and mouth swell and fester, and colic and diarrhœa are present. The animal generally recovers. *Mand* is dysentery, which generally kills the patient. *Jar*.—In the rains when the grass is young the cattle get giddy and fall down, especially buffaloes. It is seldom fatal. The *reh* of the canal tract gives the cattle glandular affections and diarrhœa, and pulls them down; they are therefore sent after a year or two to the highlands to recruit, which they do in a few months. *Rora* is used also for any epidemic cattle plague. If an animal gets lame, an oval mark with a cross in it, or Solomon's seal, or Shiv's trident, or the old Aryan mark of the need-fire, in general shape like the Manx arm, is branded on the limb affected. A *nala* or piece of the coloured thread used in religious ceremonies is a powerful charm if tied round the leg of the animal. All cattle that die on Saturday or Sunday are buried instead of being given to the *Chamars*.

Sheep and goats.

277. Considerable flocks (*rewar*) of sheep and goats are kept in the Nardak and in such Khadir villages as have large pastures. Where the villagers are Musalmans, the flocks sometimes belong to them; but they are more commonly the property of the city butchers, who send them out to graze in the villages. The sheep are all of the ordinary black small-tailed breed. They are generally tended by Gadarias who make blankets of the wool. A blanket is presented yearly to the village as a proprietory fee and is appropriated by the lambardars. The dung is used for manuring tobacco, but is not much valued, and never bought.

Other animals.

278. Pigs (*bad*) are kept in large quantities by the sweepers in the villages, and the Khatiks in the town. The Karnal breed of pigs, which is a very fine one, dates from the time of the old cantonments; and large droves of "very superior and strictly home-bred pigs" may be seen constantly going from Karnal, where they have already attained a considerable age,

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and acquired the local tastes of their race. Donkeys are kept solely by potters, and do all the petty village carriage. There are many of them in every village. The sweepers of almost every village keep fowls in some quantities.

Other animals. The Karnal remount rearing depôt and cattle farm.

279. The Karnal remount rearing depôt was established in January 1889. The number of young stock at present in the depôt is 653, but in addition to the horses there are also 120 ordnance mules which are being trained for mountain battery work. Such of the young stock as are likely to prove good for breeding are put aside for that purpose. About one-third of the Karnal farm lands recently purchased by Government is devoted to the rearing depôt, the remaining two-thirds are at present under the charge of the Commissariat Department and used as a grass farm.

The Karnal stud.

280. On the abolition of the Government Home Stud in 1876, some of the buildings and lands were made over to, General Parrott, the Superintendent. Some of the mares were sold to him, Government stallions were placed under his charge, and he set on foot an exceedingly promising experiment in horse-breeding. In fact matters had passed beyond the stage of experiment, when he recently sold his stud to Government, and at present it is being worked in connection with the depôt very much on the lines which General Parrott pursued with so much success.

SECTION C.—OCCUPATIONS, INDUSTRIES AND COMMERCE.

Occupations of the people.

281. Table No. XXIII shows the principal occupations followed by males of over 15 years of age as returned at the Census of 1881. But the figures are perhaps the least satisfactory of all the Census statistics, for reason explained in the Census Report; and they must be taken subject to limitations which are given in some detail in Part II, Chapter VIII of the same Report. The figures in Table No. XXIII refer only to the population of 15 years of age and over. The figures in the margin show the distribution of the whole population into agricultural and non-agricultural, calculated on the assumption that the number of women and children dependent upon each male of over 15 years of age is the same, whatever his occupation. These figures, however, include as agricultural only such part of the population as are agriculturists pure and simple; and exclude not only the considerable number who combine agriculture with other occupations, but also the much larger number who depend in great measure for their livelihood upon the yield of agricul-

Population.	Towns.	Villages.
Agricultural ..	16,916	314,880
Non-agricultural ..	61,412	229,413
Total ..	78,328	544,293 [1]

(1) These figures refer to the district as constituted in 1881.

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tural operations. More detailed figures for the occupations of both males and females will be found at pages 69 to 78 of Table No. XIIA, and in Table No. XIIB of the Census Report of 1881.

Occupations of the people.

A full account of agricultural occupations has been given in Chapter III, Section E.

Principal industries and manufactures.

282. Table No. XXIV gives statistics of the manufactures of the district as they stood in 1881-82. The annual return of large industries for the Karnal district for the last five years has been blank. The only manufactures prosecuted in the villages are weaving in cotton and wool, rope-making, making pottery and bricks, and minor handicrafts, such as the making of baskets and mats. They are all conducted either by the people themselves or by the menials; the latter either providing the finished articles as part of their *begar,* or being paid for their work, almost always in grain. The products are always of the roughest description, and for better finish the people have to go to the towns. Spinning and weaving are described fully by Mr. Baden-Powell, and an account of rope-making, pottery, and brick-making is given in paras. 497-501 of Mr. Ibbetson's Settlement Report.

Town manufactures.

283. In the city of Karnal several handicrafts are carried to great perfection, being relics of the days of the old cantonments. Especially it is famous for its shoe-making, many thousands of boots being sent from it to regiments all over the country. The city of Panipat is famous for the manufacture of copper and brass vessels and of skin jars (*kupa*) for holding *ghi* and oil, and exports them in considerable numbers. There is also a glass foundry, (1) the operations at which are fully described by Mr. Baden-Powell at page 237*f* of his *Punjab Manufactures.*

Mr. Lockwood Kipling, Principal of the Lahore School of Art, has kindly furnished the following note on some of the special industries of the district:—

"Panipat in this district has long been noted for small wares in metal of various kinds. A peculiar kind of bead-like ornament, known as *motis* or pearls, skilfully made in thin silver is one of the specialities of the place. A necklace of six rows costs about Rs. 30, of three rows about Rs. 10. There is no chasing or ornament of any kind, but the silver is a good colour and the beads are perfectly round. Captain Roberts reported in 1882 that this small industry is declining. Betel-nut cutters (*sarotas*) are here made in fanciful forms, the handles being of brass with quaint projections, in which small mirrors and pieces of coloured glass are fixed. A good one costs two or three rupees. Scissors are similarly ornamented; the handles being made of brass with bits of coloured glass rudely simulating

(1) Glass is, or was, also made at Gumthala in Pehowa, and a small illage adjoining Gumthala is called Kheri Shishgaran.

jewels set therein. A pair of scissors costs about 6 annas. These articles are made for export.

Town Manufactures.

"The fabrics produced in the district are of no special interest. The Internal Trade Report for 1881-82 says that blankets of the ordinary native description are largely exported to other districts; and that the Kaithal *chautahi*, a cotton-cloth with its borders, red or blue, is exported towards Patiala and the Panjab.

"Karnal itself has long had a name for glass blowing. The silvered globes of thin glass, which, when broken up, are used for mirror-worked walls and also sewn into *phulkaris*, are invariably said to come from Karnal. In the descriptive catalogue of the Panjab contributions to the Calcutta Exhibition 1883-84 Mr. Baden-Powell writes:—'In Karnal rude globes are made for ornaments, the inside being silvered with quicksilver and tin-foil; the large aperture necessary for the manipulation is awkwardly covered with ozidue. The Karnal glass-makers also prepare the large, thin, pear-shaped glass retorts or carboys, in which the native manufacture of salammoniac (*naushadar*) is effected. It would be interesting to know whether this slender manufacture is a survival of more important works carried on in either Hindu or Mughal times. There has never apparently been any lack of small phials for *attar* of roses and similar articles blown at one operation; but few examples of more substantial forms survive.'"

Course and nature of trade.

284. There are no statistics available for the general trade of the district. The exports and imports of food-grains have already been noticed in para. 268. There is no material available such as would render it possible to give anything like a complete view of the trade of the district. But a slight sketch of its general course will be interesting; and as a foundation for it, an abstract of the customs returns for the trade passing east and west through the Panipat district in 1832-33 may be attempted. At that time that trade north and south went chiefly *viâ* Hansi-Hissar, and not through Karnal, excepting salt, which passed up from Jhajjar through Karnal to the Panjab in great quantities:—

Trade passing into the Doab.

Goods.	Maunds.	Customs dues in rupees.
		Rs.
Oil seeds ...	58,616	8,794
Cotton ...	20,520	10,260
Salt ...	65,107	90,057
Salammoniac ...	2,583	2,067
Iron ...	4,766	3,400
Timber ...	...	5,200
Wool ...	641	481
Miscellaneous ...	...	3,008
	...	1,23,261

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Course and nature of trade.

Trade coming from the Doab.

Goods.	Maunds.	Customs dues in rupees.
		Rs.
Sugar	2,75,017	87,082
Gur	2,42,546	24,554
Cloth	167,880 pcs.	5,183
Leather	...	1,502
Safflower ...	3,248	2,820
Miscellaneous ...	...	3,580
	...	1,24,721

Ghi is not mentioned, and probably did not pay duty.

The course of trade thus indicated has been entirely changed by the construction of the railway and Grand Trunk Road, the mass of the external traffic now passing down these two arteries, the former being used for long distances, while the latter is still preferred for short ones. The only really important traffic east and west is that which flows to the great sugar mart of Shamli in the Muzaffarnagar district, the carts generally taking salt there from Bhiwani, or *bajra, moth,* oilseeds, and *ghi* from the highlands, and bringing away *gur.* The Khadir and canal portions of the tract produce a surplus of wheat, cotton, gram, and fine rice for export, and import salt, *bajra,* oil, and oilseeds, iron, and piece-goods. The Nardak exports *ghi,* hides, wool, and in a good year large quantities of gram; and imports the same things as the rest of the district, with the addition of sugar. Formerly large quantities of gram, *moth,* &c., from the *Jangal* country of Budlada, Patiala, and Ferozepore passed through Kaithal. The *Zamindars* of the *Jangal des* are their own carriers, and brought the grain on camels to Karnal, Shamli, and Saharanpur, taking back *gur* and fine rice. The Ferozepore grain trade was diverted by the Sindh, Panjab, and Delhi (now N. W. State) Railway, and the trade of the rest of the *Jangal des* is now being drawn to the Ferozepore-Rewari Railway. When there is a surplus of gram in Kaithal, a good deal of it finds its way to Dehli through Panipat. *Jowar, sirsam, til,* and *mung* are also exported. The *jowar* is largely bought for seed by the canal villages on both sides of the Jamna. There is little export of *bajra,* which is the favourite food of the Kaithal peasant. There is a large export of *ghi* to Dehli and Amritsar, but the trade is said to be less important than formerly, partly because the local consumption has become much greater. The trade in cattle, hides, and horns has been noticed in para. 274. The Powadh villages deal with Patiala and Samana.

The trade of the district will be greatly affected by the opening of the Dehli-Kalka Railway and the excavation of the Sirsa canal. The local trade is principally conducted through the village *banias* who deal with the larger traders at the three marts of Kaithal, Karnal, and Panipat, the last of which towns lies on the direct road to Shamli. But it is surprising how

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Course and nature of trade.

very considerable a trade is locally conducted by the villagers themselves, and especially by Jats from Rohtak. These people in the hot weather, when the bullocks would otherwise be idle, start with their carts, bring salt from Bhiwani or *bajra* and *moth* from Hansi and Hissar, exchange it for *gur* or cotton in the villages, take this up into the highlands and exchange it for gram, and finally sell the gram at Karnal or Panipat, either buying sugar to take back, or carrying piece-goods, &c., for hire. The Dehli traders often send up agents for cotton or *ghi* in the villages, and bring it direct to Dehli. This local traffic is of immense advantage to the people, as they deal direct with the carters instead of with the local *bania*, and always get a better price than he would give. When the people of the tract themselves engage in similar operations, of course the profit is still greater. But this is not often the case, as in irrigated tracts the bullocks are seldom at leisure.

Such *gur* as is not absorbed in this manner goes to Shamli, the cotton and wheat to Dehli and Ambala, and the *ghi* and hides to Dehli. Oil and oil-seeds come from the Panjab and the Doab; *til* and *sirsam* from the former, *arhar* and *tara mira* from the latter. Timber comes from Ambala, iron and piece-goods from Dehli, salt from Bhiwani, Dehli, or Ambala. The petty articles needed by the people and not produced in the villages are supplied by small hawkers, who buy them in the cities and travel about the villages, exchanging them for grain. Gangs of travelling blacksmiths,[1] too, are not uncommon, who do finer work than the village blacksmith can attain to.

SECTION D.—PRICES, WEIGHTS AND MEASURES, AND COMMUNICATIONS.

Prices, wages, rent-rates, interest.

285. The village prices of the chief agricultural staples used for the conversion of produce estimates into money at Mr. Ibbetson's Settlement of 1880 are shown below. They are based upon the average prices of the 20 years ending with 1874, prices of certain staples being excluded in the calculations of the Nardak averages for those years in which these staples

(1) In the cold weather these nomad *lohars* wander about in the districts of the Dehli division. They live in curious little carts. They encamp outside the villages, as they are bound by the custom of the tribe never to enter a house. They state that they are descendants of the Rahtor Rajputs who left Chitor after its capture by Akbar (A.D. 1567). These *lohars* are divided into eleven *gots* (clans), some of which at least bear high sounding Rajput names (*Solankhi*, *Bhatti*, *&c.*)

They do not practise *karewa*. Possibly the prohibition against entering houses is connected with their claims to be descended from the Rahtors of Chitor. Udaipur was founded by Rana Udai Singh when he fled from Chitor. "So long as Chitor was a widowed city, the Rana bound himself and his successors never to twist their beards, or eat from gold or silver, or sleep upon anything but straw. To this day the memory of the interdict is preserved in the palace at Udaipur. The Raja never twists his beard. He eats from gold and silver, but there are leaves beneath the dishes. He sleeps upon a bed, but there is a scattering of straw below." (Talboy's Wheeler's *Short History of India* p. 132).—J.M.D.

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Prices, Weights and Measures, and Communications.

Prices, wages, rent-rates, interest.

were not produced because of drought. A column has been added to show the prices assumed by Mr. Douie for Indri and Kaithal at the Settlement of 1888. He did not make any estimate for *zabti* crops, such as cane and cotton. Table No. XXVI gives the retail *bazar* prices of commodities for the last twenty-nine years. The wages of labour are shown in Table No. XXVII, but the figures are probably of doubtful value :—

Staple.	Nardak.	Karnal Khadir.	Karnal Bangar.	Panipat Khadir.	Panipat Bangar.	Indri and Kaithal.
Cotton	13	12	12	11	12	...
Gur	...	18	18	18	18	...
Maize	43	36	37	35	...	33
Fine rice	41	35	36	35	34	30
Coarse rice	48	45	44	...	...	39
Jowar	42	35	36	35	35	33
Bajra	35	29	29	29	29	31
Moth	39	43	34	34	34	28
Wheat	32	31	30	29	29	27
Gram	49	38	39	38	37	35
Barley	...	43	44	...	43	39
Wheat and gram ...	45	37	37	35	35	32
Barley and gram ...	50	42	43	...	40	39
Masri	...	40	...	...	...	32

The figures of Table No. XXXII give the average values of land in rupees per acre shown in the margin, for sale and mortgage; but the quality of land varies so enormously and the value returned is so often fictitious, that but little reliance can be placed upon the figures. The subject has been noticed as regards Indri and Kaithal in para. 192.

Period.	Sale.	Mortgage.
1868-69 to 1873-74 ..	14—13	18—12
1874-75 to 1877-78 ..	15—6	12—4
1878-79 to 1881-82 ..	24—3	20—9

Changes in the value of agricultural produce.

286. Mr. Ibbetson thus discusses the history of prices in Karnal :—

"The prices of agricultural produce which ruled in the villages between 1830 and 1874 have been obtained from the *banias'* books in the manner already described, and are summarised in the following table, which shows average prices in sers per rupee in the Panipat *tahsil* :—

Prices Weights and Measures, and Communications.

Changes in the value of agricultural produce.

Period.		Cotton.	Gur.	Maize.	Rice.	Jowar.	Wheat.	Gram.	Barley.
1830 to 1834	...	16	21	67	53	68	45	58	46
1835 to 1838	...	16	18	43	42	42	31	45	45
1840 to 1844	...	18	21	42	33	38	34	39	45
1845 to 1849	...	18	20	43	38	39	33	39	44
1850 to 1054	...	21	24	52	37	55	41	50	58
1855 to 1859	...	16	21	55	43	50	40	58	62
1860 to 1864	...	10	16	31	33	32	28	34	40
1864 to 1869	...	9	16	27	27	28	22	27	31
1870 to 1874	...	11	16	31	31	32	25	31	37

Ruling Prices in Karnal Nardak in sers per rupee.

Year.		Cotton.	Maize.	Fine rice.	Coarse rice.	Jowar.	Bajra.	Moth.	Wheat.	Gram.	Barley.
1855	...	22	69	51	65	60	45	59	50	70	65
1856	...	18	48	53	65	56	50	50	38	70	70
1857	...	16	68	53	75	62	40	74	46	76	70
1858	...	...	...	...	...	...	...	...	42	71	69
1859	...	...	...	...	...	...	...	...	...	33	...
1860	...	...	...	...	...	...	...	...	...	...	...
1861	...	20	30	37	40	30	28	28	24	...	...
1862	...	11	44	46	56	43	38	38	40	48	63
1863	...	6	50	49	48	38	35	36	36	42	60
1864	...	...	...	...	43	...	...	...	26	...	...
1865	...	11	40	30	...	35	30	26	26	40	39
1866	...	...	...	...	34	...	...	...	23	...	...
1867	...	14	36	34	39	37	34	28	25	32	...
1868	...	...	...	...	...	...	...	...	...	...	...
1869	...	...	...	...	...	...	...	...	...	...	...
1870	...	10	39	35	42	42	30	29	29	...	37
1871	...	...	...	...	40	...	...	...	25	...	36
1872	...	10	30	34	40	32	31	31	28	35	40
1873	...	11	30	33	40	32	27	35	24	35	36
1874	...	11	32	34	40	32	28	32	26	33	32
Average		13	43	41	48	42	35	39	32	49	52

NOTE.—The years for which the price of any staple is not shown are the years in which that staple was not produced in the Nardak, owing to drought.

"Special circumstances have combined to render the rise in prices, which has been so general all over India, somewhat less-marked in this district than elsewhere. The large frontier cantonment which was kept up for so many years at Karnal created a local demand which its transfer to Ambala did not much diminish; and the populous city of Dehli is so near that the metalling of the Grand Trunk Road, always a good one, which was done about 1853, did not affect prices so much as new communications would do in an isolated tract. The same thing may be said of the great mart

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of Shamli, to which the present road existed before last Settlement, though doubtless it is better now than then. Another cause which tended to keep prices up was the immediate proximity of the arid tracts of Hariana and the Bagar, the normal state of which appears to be scanty rain relieved by frequent droughts; the influence of this cause is often noted in the early correspondence, but the extended use of canal water in these tracts has lately tended to equalise the local supply with the demand.

"The prices tell their own tale. The first five-yearly period is marked by the famine of 1833; the second by the drought of 1837-38. In the third, during which the Settlement was made, the rain-fall was somewhat scanty throughout; but the prices may probably be taken as the normal rates of the time, as they tally with those of the preceding period, and for the next five years remain almost unaltered, although the seasons were favourable. The supplies needed by the army operating in the Panjab between 1845 and 1847 were largely drawn from this neighbourhood. The fifth period, from 1850 to 1855, is marked by a sudden and extensive fall in all prices, which continued to 1858; and this must, I fancy, have been owing to the opening out of the Panjab, and to its surplus stuffs pouring into a market from which no railway existed to carry them away. The famine of 1859-60 only introduced the cotton famine, which began in 1861 and continued for five years, during which time it is estimated that £63,000,000 sterling of silver was poured into Bombay. This enormous addition to the circulation of the country drove up prices with a rush, and, before equilibrium had been restored, the introduction of steam carriage from Dehli threw open the markets of the world to India, and perpetuated the high level which had been reached.

"The famine of 1869 created a temporary disturbance, but for the last five years the seasons have been fair, the opening of the Panjab railway in 1870 has completed the connection between Lahore and Bombay, and prices have stood with an extraordinary steadiness at what may be considered their normal rates. Since then the drought of 1877-80 has again raised prices considerably; but the rise is probably only temporary. Taking the periods from 1840 to 1845 and from 1870 to 1875 as giving normal rates for last settlement and for the present time, which I think we may fairly do, we find the rise in prices to be as follows:—

	Wheat.	Gram.	Barley.	*Jowar.*	Rice.	Cotton.	Maize.	Gur.
Settlement rates ...	100	100	100	100	100	100	100	100
Present rates ...	136	126	121	119	106	163	135	131

And the general result may be said to be that prices have risen by about one quarter.

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In discussing the same subject in connection with the Settlement of Indri and Kaithal, Mr. Douie wrote as follows :—

"The history of prices and the causes of their fluctuations since Settlement have been so often described that I need not say much on the subject. The main features are the same in Karnal as elsewhere, though the changes have been less violent. We have a period of comparatively high prices coming to have an end about 1850, a considerable fall between 1851 and 1860, a great rise coincident with the famine of 1860-61, and made permanent by the rapid expansion of the trade of the province. Since 1860-61 prices have been fairly level, except in years of actual famine such as 1869 and 1878. Since the famine of 1877-78 they have ruled exceptionally high. No anticipations of a permanent increase can be based on this fact, which is due solely to the occurrence of a series of bad seasons. One or two good harvests have at once brought prices down, and those ruling lately were actually lower than the average prices prevailing in the five years 1860-64, when food grains were still very cheap.

"But, while the prominent features of the history of prices have been the same here as in the rest of the Panjab, there are very marked differences to be noted. Between 1840 and 1860 prices were decidedly higher in Karnal than in the Panjab proper, as a comparison of my statistics with those collected by Mr. Purser and Captain Montgomery for the Jalandhar and Hoshiarpur districts will show. * * * * Moreover, the fall in prices after 1850 was much less marked in Karnal than in districts lying further to the north-west. The average Karnal prices are still higher than those prevailing in the Jalandhar Doab, but the difference now is insignificant compared with what it was formerly. The reasons of the comparatively high range of prices in Karnal before 1860 have been given by Mr. Ibbetson.

"As I have noticed already, prices have, for special reasons, been abnormally high since the famine of 1877-78, and I consider we shall obtain a better idea of what they are likely to be in future by taking as the basis of our estimate the average prices of the 20 years 1860-79, than those of the twenty-five years 1860-84.

"The degree in which we should follow the averages strictly depends upon the question how far we should include in our calculations the prices of famine years. * * * *

"I consider, that in calculating the prices of the unirrigated staples, especially gram, coarse rice, and *jowar*, grown in the drier tracts, which occupy the greater part of my charge, we would be justified in excluding the figures for *kharif* 1860 and *rabi* 1861 (famine of 1860-61) *kharif* 1868 and 1869, *rabi* 1869 and 1870 (famine of 1868-70), and *kharif* 1877 and *rabi* 1878 (famine of 1877-78). As regards crops which are partly grown on irrigated land, and only cultivated to any great extent as dry crops in the more favorably situated circles, *e.g.*, wheat, the average prices of the whole period of 20 years should be taken, but, in deciding on the prices to be assumed, a liberal allowance should be made for the frequency of famine years.

"The following table shows (*a*) the average prices received by agriculturists for the principal grains in the twenty years 1860-79.

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(*b*) The same excluding the prices ruling in the harvests mentioned in the last paragraph.

(*c*) The prices I propose to adopt for assesment purposes.

Grain.	Average Prices: Of 20 years 1860-1879.	Average Prices: Of 1860-1879, excluding 4 famine years.	Prices assumed for assesment purposes.
Wheat	25¾	28½	27
Barley	37½	40¾	39
Gram	32¼	35½	35
Wheat and gram ...	30	32¾	32
Barley and gram ...	38½	40	39
Masri	30¾	32¼	32
Sirsam...	20½	21¼	21
Maize	30¾	34	33
Jowar	31¼	33¼	33
Bajra	30	31¼	31
Ziri	29¼	31¼	30
Coarse rice	36	39¼	39
Toria	20½	21½	21
Urd	24¼	26	26
Mung	26¼	27½	26
Moth	27	28½	28

For wheat and barley, *jaumasri*, and *mandwa*, which are not included in my tables, I assume 36, 36, and 48 sers per rupee respectively. *Mandwa* is a very inferior grain, and in a good year its price sometimes falls as low as two maunds the rupee. * * * *

"It only remains to compare the prices now assumed with those adopted at last Settlement. The result is shown in the annexed table. Mr. Wynyard adopted separate estimates for *parganas* Ladwa and Thanesar. The prices shown are the mean of the two, except in the case of coarse rice. Here I have adopted the Ladwa price, the Thanesar figures being so low as to suggest the occurence of some mistake":—

Detail.	Wheat.	Barley.	Gram.	Sirsam.	Maize.	Jowar.	Bajra.	Toria.	Coarse rice.
Last Settlement	37	48	40	27	43	42	42	28	55
Present Settlement	27	39	35	21	33	33	31	21	39

Weights and measures.

287. The weights and measures of the district are divided into *kachcha* and *pakka*; the latter being the standard measures in which Government returns and records are prepared, the former the measures used by the people in their daily life. Close to the towns the villagers often use *pakka* weights and measures; towards the Rohtak border they always use *pakka*

Weights and measures.

weights and *kachcha* measures; in the rest of the tract both are always *kachcha*. But prices are always quoted in *pakka* weights. Thus when a villager says his field produces three maunds a *bigah*, and grain is 30 sers per rupee, the maund and *bigah* are *kachcha*, the sers *pakka*.

The weights used are as follows, the *pakka* weight being always double the *kachcha* weight of the same name :—

I.—

5 tolas	= 1 chittak *pakka*.			
20 "	= 4 " "	= 1 pao *pakka*.		
80 "	= 16 " "	= 4 " "	= 1 ser *pakka*	
3,200 "	= 640 " "	= 160 " "	= 40 " "	= 1 maund *pakka* = (82·3 lbs.)

II.—

4 pao *kachcha*	= 1 ser *kachcha*	
160 " "	= 40 " "	= 1 maund *kachcha*(1) = (41·15 lbs.).

III.—

5 sers *pakka*	= 16 sers *kachcha*	= 1 dhari.		
10 " "	= 20 " "	= 2 "	= 1 dhon.	
60 " "	=120 " "	= 12 "	= 6 "	= pan =(123·55 lbs.).

This last is the real village measure, the weights in it alone not varying from *kachcha* to *pakka*. Besides these there are *gahra* or as much as can be carried under the arm; and *bhar* or as much as can be carried on the head.

The measures of length are as follows, the *kachcha* yard being three quarters the length of the *pakka*, and being always used by the people :—

I.—

3 Ungli	= 1 girah				
4 "	=	= 1 muthi.			
12 "	= 4 "	= 3 "	= 1 balisht or biland.		
24 "	= 8 "	= 6 "	= 2 "	= 1 hath.	
36 "	= 12 "	= 9 "	= 3 "	=	= 1 gaz kachcha.
48 "	= 16 "	= 12 "	= 4 "	= 2 "	= 1 gaz pakka=(36 ins.)

II.—

2 Kadams	= 1 gatha kachcha.	
23 "	= 10 " "	= 1 jarib kachcha = (31·75 yards).

III.

3 Gaz pakka	= 1 gatha pakka.	
60 " "	= 20 " "	= 1 jarib pakka = (55 yards).

The *ungli* is the finger breadth; the *muthi*, the closed fist; the *balisht* the span; *hath*, the cubit, or from the elbow to the finger tips, the *kadam*, the double pace.

The measures of area are as follows, each *kachcha* measure being one-third of the corresponding *pakka* measure; and the people using *kachcha* measures generally :—

Pakka—

20 sq. gathas		= 1 biswa.	
400 " "	= 1 sq. jarib	= 20 "	=($\frac{5}{8}$ of an acre).

Kachcha—

5 sq. gathas =		= 1 biswa	
100 " "	= 1 sq. jarib	= 20 "	= bigah=($\frac{5}{24}$ of an acre)

The *biswa* whether *kachcha* or *pakka*, is of course further sub-divided into *biswansi*, *tiswansi*, *kachwansi*, &c., each being one-twentieth of the preceding one, but the people do not talk

(1) In Indri the *kachcha* maund is 16 or 17 Government sers, and the dhari and dhon are both less than 5 and 10 *pakka* sers respectively.

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Weights and measures.

as a rule even of *biswas*, but of *pao bigah*, (¼ *bigah*), *adh bigah* (½ *bigah*), &c. The scales given above are those now used; but the real difference between the *pakka* and *kachcha bigah* is that the former is based upon the *gatha* and the latter on the *kadam* as its unit; each consisting primarily of a square with 20 units as its side.

Up till 1826, in which year the Government introduced the *pakka bigah* of 3,025 square yards, the local *bigah* in Panipat and *pargana* Karnal was the present *kachcha bigah* of 1,008 square yards, which is approximately one-fifth of an acre. The proper *kachcha bigah* of Indri is one-fourth of a *pakka bigah* and $\frac{5}{32}$ of an acre. But a *kachcha bigah* equal to $\frac{5}{24}$ of an acre was adopted as the standard of land measurement at the recent settlement.

There are no real measures of capacity current in the tract, grain and liquids being sold by weight. The *map*, used to measure grain, generally holds either a maund or a maund-and-a-quarter; but this is only approximate, and the contents of any particular measure are always weighed to ascertain the total weight. A pinch of anything is called *chugti*; a clozed handful, *muthi*; and the contents of the two hands put open side by side, *anjla*.

Communications.

288. The figures in the margin show the communications of the district as returned in Table No. I of the Administration Report for 1888-89. The figures do not include the roads in the Pehowa tract recently transferred to Kaithal. Table No. XLVI shows the distances from place to place as authoritatively fixed for the purposes of calculating travelling allowance. Table No. XIX shows the area taken up by Government for communications in the District.

Communications.	Miles.
Navigable rivers	73
Railways	..
Metalled road	69
Unmetalled road	560

Navigable rivers and canals; ferries and bridges.

289. The Jamna river is navigable for country craft throughout its course within the district; but is little used for the purpose. The new main line of the Canal, new Dehli Branch, and new Hansi Branch, have been designed for navigation for boats 90 feet in length and 16 feet beam, and depth of water 8 to 6 feet, headway 11 feet. The mooring places and ferries on the Jamna and the distances between them are shown below, following the downward course of the river:—

River.	Stations.	Distances in miles.	Remarks.
Jamna	Chauganwa ...	...	Ferry and mooring places.
	Kalsaura ...	5	Do. do.
	Dabkauli ...	5	Do. do.
	Begi ...	4	Do. do.
	Mirgahan ...	10	Boat bridge.
	Sanauli ...	18	Do.
	Khojgipur ...	11	Ferry and mooring places.

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List of Canal bridges.

The following table is a list of canal bridges on the new and old canals and their branches with distances in miles calculated from Badarpur near the Pipli and Indri border.

No.	Names of bridges.	Distance from Badarpur in miles.
	New Main Line.	
1	Indri Regulator	8
2	Gorgarh ...	11½
3	Kheri ...	13
4	Rambha ...	15
5	Darar ...	17
6	Uchana ...	19
7	Karnal ...	22
8	Kaithal ...	23
9	Ghogripur ...	26
10	Barauta ...	28
11	Jani ...	30
12	Gagsina ...	34
13	Munak Bifurcation ...	38
	New Dehli Branch Division.	
1	Dehli Branch Regulator ...	38
2	Rer Bridge ...	39
3	Rer Escape Head ...	41
4	Baholi Bridge ...	43
5	Sutana Ferry ...	45
6	Kabri Bridge ...	48
7	Panipat & Allupur Road Bridge	50
8	Do. & Jatoul do.	51
9	Binjaul Lock Bridge and fall	52
10	Mahrana Ferry ...	53
11	Hartari Bridge ...	54
12	Bursham Bridge ...	57
13	Naraina do. ...	59

No.	Names of bridges.	Distance from Badarpur in miles.
14	Dhodpur Bridge ...	61
15	Dhindhar Ferry ...	63
16	Mahrana Syphon ...	65
	New Hansi Branch.	
1	Lock at Hansi Head ...	38
2	Bala Bridge ...	40
3	Mor Majra Lock and fall ...	42
4	Bhuslan Bridge ...	45
5	Dhohat Bridge on old Hansi canal	46
	Butana Branch.	
1	Butana Head ...	46
2	Bridge No. 50 ...	51
3	Do. No. 90 ...	53
4	Do. No. 119 ...	55
5	Do. No. 150 ...	57
	Old Canal	
1	Indri suspension bridge ...	9
2	Buddha Khera Bridge ...	25
3	Karnal Cantonment ...	27¼
4	Do. City ...	29
5	Gharaunda ...	33
6	Phurlak ...	39
7	Raipur ...	41
8	Rer ...	48
	Bridge on Old Dehli Canal	
1	Baholi ...	50
2	Khukrana ...	54

No.	Names of bridges.	Distance from Badarpur in miles.
3	Jataul ...	57
4	Naultha ...	61
5	Dadwari ...	24
6	Palri ...	66
7	Chamrara ...	69
	Hansi Branch.	
1	Rer Bridge ...	48
2	Dharm Godh Bridge ...	51
3	Shera Bridge ...	53
4	Madlanda Bridge ...	56
5	Joshi Bridge ...	58
	Rohtak Branch.	
1	Narah Bridge ...	60
2	Adhiana Bridge ...	62
3	Alupur ...	64
4	Ahar ...	67
5	Karana ...	70
	Balla Branch.	
1	Balla Canal Head ...	45
2	Munak Bridge ...	46
3	Do. do. No. 2 ...	47
4	Rer Wala Bridge ...	48
5	Ballah Bridge ...	51
6	Goli Bridge ...	52
7	Ram Wala Bridge ...	53

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Roads, rest-houses, and encamping-grounds.

290. The New Dehli-Kalka Railway passes through the heart of the district and will be opened in the beginning of 1891. It has six stations in the district, Simbhalka, Panipat, Gharaunda, Karnal, Tiraori, and Amin. The Grand Trunk Road passes through Karnal connecting it with Dehli on the one side and Ambala on the other, and is the only metalled road in the district.

The unmetalled roads, so far as they lie in the canal tract, are generally bad, and when they get into the zone of swamps due to the canal, all but impassable, a single cart having but little chance of getting on alone till others come up and the cattle can be doubled. But the Khadir roads, though often heavy with sand, are otherwise good; and those in the high lands are generally admiable. Communications with Rohtak, Hissar, and Kaithal are good; but the flooded belt bordering on the Sarusti and Ghagar completely cuts off the Patiala highlands for all wheeled conveyances; and, though a road has been made beyond Kaithal towards Patiala, it requires much further expenditure to develope its usefulness.

The village roads are in the canal irrigated parts unspeakably bad. They are exceedingly narrow; and the banks which protect the cultivation being dug from the soil of the road, they become veritable sloughs in the rains; while in the canal tract the frequency of standing water, the want of bridges, and the slipperiness of the salt-impregnated soil when damped by a shower, makes the road always difficult and often almost impassable, and carriage throughout the tract infinitely laborious.

The following table shows the principal roads of the district, together with the halting places on them and the conveniences for travellers to be found at each:—

Route.	Halting places.	Distance in miles.	Remarks.
Grand Trunk Road, Metalled.	Simbhalká ...	...	Encamping ground, *Sarai*, Police Rest-house, and Road Bungalow.
	Pánípat ...	10	Encamping ground, *Sarai*, Police and District Rest house, and Road Bungalow.
	Gharaundá ...	10	Encamping ground, *Sarai*, Police Rest-house, and Road Bungalow.
	Karnál ...	10	Encamping ground, *Sarai*, Dak Bungalow, Road Bungalow and Canal Bungalow.
	Butana ...	13	Encamping ground, *Sarai*, Police Rest-house, and P. W. D. Bungalow.
Karnal and Kaithal, Unmetalled.	Nisang ...	14	*Sarai*, Combined District and Police Rest-house.
	Pundri ...	14	*Sarai*, Combined District and Police Rest-house.
	Kaithal ...	10	This is a double road for light and heavy traffic. It passes through a dry tract and is an excellent road except after heavy rain.

Chapter IV, D.

Prices, Weights, and Measures, and Communications.

Roads, rest-houses, and encamping-grounds.

Route.	Halting places.	Distance in miles	Remarks.
Panipat and Kaithal, Unmetalled.	Rajaundh ...	15	Police rest-house.
	Asandh ...	8	Ditto.
	Khukrana ...	22	Canal *Chauki*.
	Panipat ...	4	Encamping Ground, *Sarai*, District and Police rest-house, Road bungalow. A double road for light and heavy traffic.
Kaithal towards Patiala, Unmetalled.	Ghula	10	Police rest-house.
	Siwan	6	This road runs towards the Ghagar river and Patiala. The part which runs through the Sarusti valley is impassable in the rains.
Karnal towards Hansi, Unmetalled.	Jani	8	Canal bungalow 1½ mile from road.
	Munak	8	Canal bungalow between Munak and Rer, one mile from road.
	Rer	1	
	Jindh boundary	7	*Nil*.
Panipat towards Rohtak, Unmetalled.	Israna	12	Canal *Chauki*.
	Rohtak boundary	5	*Nil*.
Panipat to Alupur, Unmetalled.	Alupur... ...	13	
Karnal towards Jagdhri, Unmetalled.	Indri	13	Canal *Chauki*.
Indri towards Thanesar, Unmetalled.	Thanesar ...	...	District Bungalow.
	None	10 within district.	A very bad road. Crosses the Chautang and Rakshi drainages.
Indri to Butana, Unmetalled.	Butana... ...	8	Encamping house-ground, *Sarai*, P. W. D. Bungalow. A bad road.

(1) This road strikes off from the Grand Trunk Road 3 miles from Karnal and is metalled for a short distance.

Chapter IV. D.

Prices, Weights and Measures, and Communications.

Roads, rest-houses, and encamping-grounds.

Route.	Halting places.	Distance in miles.	Remarks.
Rajaundh to Pundri, Unmetalled.	Pundri ...	13	*Sarai*, combined district and Police Rest-house.
Munak and Pundri, Unmetalled.	Pundri ...	19	Ditto.
Nisang to Munak, Unmetalled.	Munak... ...	13	Police Rest-house at Nisang; Canal Bungalow at Munak.
Alupur to Naultha, Unmetalled.	Alupur ...	8	Police Rest-house.

There are also unmetalled roads from—(*a*) Kaithal to Pehowa, (*b*) Kaithal towards Thanesar, (*c*) Kaithal towards Jindh, and Kaithal towards Saharanpur. A road connects Pehowa and Thanesar, but owing to the flooded state of the country near the former town it is usually in very bad order.

Other unmetalled roads are :—

			Miles within district.
Karnal	towards	Asandh	26
Do.	"	Meerut	6
Do.	"	Ferozepore	21
Panipat	"	Sanauli	10
Do.	"	Safidon	15
Do.	"	Nisang	26
Indri	"	Changanwa	12

On these there are no fixed halting places.

There is a good unmetalled inspection road available for light wheel traffic along the left bank of the new main line, new Hansi Branch and new Dehli Branch, and a fair road along the old canal and its branches below the Badshahi Bridge on the Grand Trunk Road. But the Canal Department do not allow these roads to be used by the public. There are inspection bungalows on the old and new canals, with furniture only; they are situated at Indri 15 miles from Karnal, at Phurlak 12 miles, and at Rer 24 miles below Karnal, also at Israna, Lohari, and Joshi; at Rambha on the new main line, 9 miles from Karnal, Karnal itself on the new main line, Jani 7 miles from Karnal on the new main line, and Munak 15 miles from Karnal at the bifurcation.

The Karnal *Dák* Bungalow is completely furnished and provided with servants. The district and Police rest-houses have furniture, crockery, and cooking utensils, but no servants. The canal *chaukis* and road bungalows have furniture only.

Post offices.

There are Post Offices with Savings Bank and Money Order Offices at—1 Karnal; 2 Panipat; 3 Gharaunda; 4 Simbhalka; 5 Alupur; 6 Asandh; 7 Nisang; 8 Pundri; 9 Butana; 10 Guhla; 11 Kunjpura; 12 Indri; 13 Kaithal; and village post offices at—1 Tiraori; 2 Barsat; and 3 Naultha.

CHAPTER V.

ADMINISTRATION AND FINANCE.

SECTION A.—GENERAL ADMINISTRATION.

Chapter V, A.

General Administration.

Executive and Judicial.

291. The Karnal district is under the control of the Commissioner of Dehli. The ordinary head-quarters staff of the district consists of a Deputy Commissioner and 3 Extra Assistant Commissioners. Each *tahsil* is in charge of a *Tahsildar* assisted by a Naib. Since the Kaithal *tahsil* has been enlarged by the transfer to it of 89 Pehowa villages, an additional *Naib Tahsildar* on Rs. 75 per mensem has been stationed at Guhla. The village revenue staff is shown in the margin.

Tahsil.	Kanungos.	Patwaris and assistants
Karnal ..	3	100
Panipat ..	3	80
Kaithal ..	4	84

There is one *Munsiff* in the district, who has jurisdiction within the Karnal and Panipat *tahsils*, and also in *pargana* Asandh of the Kaithal *tahsil*. He sits alternately for 2 months at Karnal and 2 months at Panipat. The statistics of civil and revenue litigation are given in Table No. XXXIX.

The executive staff of the district is assisted by Bhai Jasmer Singh of Arnauli, Bhai Anokh Singh of Siddhuwal, Mir Riaz Husain, of Kaithal, and Shamsher Ali Khan Mandal, of Karnal. The first has the powers of a Magistrate of the 1st class, the second and third 2nd, and the last 3rd class powers. The first two exercise magisterial powers within the limits of their respective *jagirs* and the last two in the towns of Kaithal and Karnal.

The Police force is controlled by a District Superintendent. The strength of the force as given in Table No. 1 of the police Report for 1889 is shown in the margin. In addition to this force 30 *dafadars* and 1,095 village watchmen (see Chapter III) are entertained and paid by the villagers half-yearly at each harvest time.

Class of Police.	Total strength.	Distribution.	
		Standing guard.	Protection and detection.
District Imperial ..	450	48	402
Municipal ..	453	..	153

The *thanas* or principal police jurisdictions and the *chaukis* or Police posts on the Trunk Road, are distributed as follows:—

Executive and Judicial.

TAHSIL KARNAL.—*Thanas*—Karnal Sadr, Karnal city, Nisang, Gharaunda, Butana, and Indri. *Road posts*—Samana, Butana, Tikana, Shamgarh, Uchana, Miran Ghati, Pul Badshahi, Jhil, Gharaunda, Kohand, and Badauli.

TAHSIL PANIPAT.—*Thanas*—Panipat, Alupur, and Simbhalka. *Road posts*—Panipat, Seva, Machhrauli, Simbhalka, and Patti Kaliana.

TAHSIL KAITHAL.—*Thanas*—Kaithal, Guhla, Rajaund, Asandh, Pundri, and Pehowa.

There is a cattle-pound at each *thana* and one at Kunjpura, the former under the control of the police and the latter under the *Tahsildar* of Karnal. There are also pounds at Singoha, Rer, Phurlak, Naultha, Khukrana, Pabri, Israna, Joshi, Mowana, Goli, Sink, and Kurana, under the management of the Canal Department. The district lies within the Ambala Police Circle, under the control of the Deputy Inspector-General of Police at Ambala.

The district gaol at head-quarters consists of some old gun-sheds, to which barracks and work-sheds have been added. It contains accommodation for 262 prisoners. Table No. XL gives statistics of criminal trials, Table No. XLI of police enquiries, and Table No. XLII of convicts in gaol.

Criminal tribes, and crime.

292. The Bilochis and Tagus are proclaimed under the Criminal Tribes Act having been brought under the Act in 1876 and 1881 respectively. In 1889, 274 Tagus and 199 Bilochis were on the register. The number of Bilochis on the register has been more than doubled by the transfer of 89 Pehowa villages to Ambala, as a good many Bilochis live in the Pehowa Naili. Tagus are very troublesome. 236 members of the tribe had succeeded in evading registration up to the end of 1889. During the year. 29 were convicted under the provisions of the Criminal Tribes Act, and six for theft and house trespass. During 1889 few Bilochis were convicted within the district, but Karnal Bilochis were brought to trial in Dehli, Malerkotla, Patiala, and even as far off as Darbhanga.

Tribes.	Men.
Tagus	274
Bilochis	199

Cattle-stealing may be said to be the normal crime of this district, the Nardak wilds affording much facility for its successful accomplishment. Thefts of this nature are performed in a very systematic manner, the animals being rapidly transferred to great distances, and to other districts through the medium of accomplices. Cattle-lifting, however, is become less prevalent than it was. Formerly the greater families or even headmen of villages would occasionally demur to give a daughter in marriage to a man who had not proved his capability to support

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General Administration.

a family by cattle theft; and before British rule cattle raids on the most extensive scale were by no means uncommon throughout the Kuthana and Asandh *parganas* of the district.

Revenue, Taxation, and Registration.

293. The gross revenue collections of the district for the last 22 years, so far as they are made by the Financial Commissioner, are shown in the Table No. XXVIII, while Tables Nos. XXIX, XXXV, XXXIV and XXXIII give further details for Land Revenue, Excise, License Tax, and Stamps, respectively. Table No. XXXIIIA shows the number and situation of Registration offices. The central distillery for the manufacture of country liquor is situated at Karnal. Table No. XXXVI gives the income and expenditure from district funds, which are controlled by a District Board and 3 local boards, one for each *tahsil*, constituted under Act XX of 1883. The District Board consists of 37 members, 25 of whom are elected, 9 nominated, while 3 have seats in virtue of the offices which they hold. The three local boards have in all 58 members, 45 of whom are elected, 9 nominated, and five have seats *ex-officio*.

Table No. XLV gives statistics for Municipal Taxation while the Municipalities themselves are noticed in Chapter VI. The income and expenditure of provincial properties managed by the District Board in 1889-90 is given below :—

Detail.	Income.	Fixed Compensation paid by Government included in column 2.	Expenditure.	Fixed Compensation paid to Government included in column 4.
	Rs.	Rs.	Rs.	Rs.
Ferries	12,373	...	16,915	11,000
Cattle Pounds	2,608	...	1,199	200
Dak Bungalows	444	184	1,516	...
Nazul Properties ...	66	...	119	119
Total ...	15,491	184	19,749	11,319

The ferries and bungalows have already been noticed in paras. 289-290 and the cattle-pounds in para. 291. The *nazul* properties in the Karnal district consist of 17 old buildings, 12 gardens and 15 pieces of waste land and sites of old forts, &c. Among the old buildings there are 1 *sarai* at Karnal, 2 gateways which remain of the old Imperial *sarai* at Gharaunda said to have been built in the time of Shahjahan, and one palace fort at Kaithal. The *sarai* at Karnal was built by a banker named Bhara Mal in the time of the Emperor Akbar. The old palace fort at Kaithal belonged to the Bhais of Kaithal, and became Government property when Kaithal fell to the British on the failure of the ruling line. Figures for other Government estates are given in Table No. XVII, and they and their proceeds are noticed in the succeeding section of this Chapter, in which the land revenue administration of the district is treated of.

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Statistics of land revenue.

294. Table No. XXIX gives figures for the principal items and the totals of land revenue collections since 1868-69. The remaining items for 1887-88 and 1888-89 are shown in the margin.

Source of revenue.	1887-88.	1888-89.
	Rs.	Rs
Surplus warrant *talabana* ...	475	524
Revenue fines and forfeitures ...	811	841
Fees ...	1,678	2,180
Other items of miscellaneous land revenue ...	...	81

Table No. XXX shows the amount of assigned land revenue; while Table No. XIV gives the areas upon which the present land revenue of the district is assessed. The statistics given in the following tables throw some light upon the working of the Settlement:—Table No. XXXI—Balances, remissions, and *takavi* advances. Table No. XXXII—Sales and mortgages of land. Tables, Nos. XXXIII and XXXIIIA—Registration.

Education.

295. Table No. XXXVII gives figures for the Government and aided, middle and primary schools of the district. There are middle schools, for boys, at Karnal, Panipat, Kaithal, Kunjpura, and Pundri; while primary schools are situated at Amin, Baras, Bairsal, Barsat, Faridpur, Jundla, Ghir, Gharaunda, Indri, Shergarh Tapu, Gondar, Munak, Nisang, Ganjogarhi, Chaura, Rambha, Bala, Baragaon, Tiraori, Kachhwa, Ghogripur, Samana, Kunjpura, Karnal, Kaseran Branch, Mamun Bhanja Branch, Sadr Branch, Sarai Branch, Dhansura, Barsat Girls' School, in the Karnal *tahsil*; at Simbhalka, Jaurasi, Patti Kaliana, Siwah, Babail, Manana, Naultha, Israna, Hatwala, Mandi, Pasina, Urlana Kalan, Kawi, Kurana, Panipat, Rajputan Branch, Ansar Branch, in the Panipat *tahsil*; and at Fatehpur, Chika, Habri, Siwan, Asandh, Arnauli, Pharal, Bhagal, Keorak, Guhla, Balu, Pai, Kaithal, Pundri, Pehowa, Sarsa, Kaul, Gumthala Garhu, Kaithal Urdu Girls' School, Kaithal Nagri Girls' School, Pundri Girls' School, in the Kaithal *tahsil*. The district lies within the Ambala circle, which forms the charge of the Inspector of Schools at Dehli.

Table No. XIII gives statistics of education collected at the Census of 1881; and the general state of education has already been described at page 85. Among indigenous schools the Arabic school at Panipat is worthy of notice. It is supported by the voluntary contributions of the more wealthy Musalmans, and some 30 to 40 boys attend, chiefly sons of the middle class Muhammadans of the town. Ladies of the Dehli *Zanana* Mission are located at Karnal, and visit women in the city and teach them and their children.

The Karnal School, formerly called the District School, was established in 1860. Its management was handed over to the Municipal Board in 1886. The main School consists of Middle and Upper Primary departments and one class of the

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Education.

Lower Primary department. Connected with the School there are four branch lower primary schools, all situated within Municipal limits, and a Boarding House, located at present in the old *sarai*.

The staff consists of a head-master, a second master, a mathematical teacher and a Persian teacher in the middle department, two English and one Persian teacher in the upper primary, and five Persian teachers in the lower primary department and in the branch schools. One of the latter has also a Nagri teacher.

The following table shows the expenditure, number of pupils, and result of examinations for the past five years:—

YEARS.	Annual Expenditure.	Average No. on roll.	Candidates for Middle School Examination.	Passed the Middle School Examination.	Candidates for the Upper Primary Examination.	Passed the Upper Primary Examination.	Candidates for the Lower Primary Examination.	Passed the Lower Primary Examination.
	Rs.							
1885-86.	6,246	362	12	10	27	17	43	30
1886-87.	4,597	331	15	10	27	13	33	23
1887-88.	4,811	335	13	6	17	16	29	15
1888-89.	4,721	300	16	3	20	15	28	26
1889-90.	4,534	261	23	13	11	10	19	14

Medical.

296. Table No. XXXVIII gives separate figures for the last five years for each of the dispensaries of the district which are under the general control of the Civil Surgeon, and in the immediate charge of Hospital Assistants at Karnal, Panipat, Kaithal, Kunjpura, and Asandh.

The *Sadr* dispensary of Karnal, which was founded in 1861, is situated at the north-west corner of the town, between it and the civil lines, and contains accommodation for 22 male and 12 female in-patients. Its staff consists of an Assistant Surgeon, a compounder, a dresser, two apprentices and menials.

Ecclesiastical.

297. There is a small church at Karnal capable of seating some 50 persons. No Chaplain is posted here, but one of the Missionaries at Dehli visits Karnal occasionally to hold a service at the station.

Head-quarters of other departments.

298. The whole of the main line of the Western Jamna Canal from the head at Tajawala to Munak and the Hansi Branch, which extends to some distance below Hissar, are under the charge of the Executive Engineer, Karnal Division, stationed at Dadupur, in the Jagadhri *tahsil* of Ambala. The new Dehli Branch, which runs from Munak to Dehli, is under the charge of the Executive Engineer, Dehli Division, stationed at Dehli, in which Division the old Rohtak Canal irrigation is also in-

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Head-quarters of other departments.

cluded. The head-quarters of the Executive Engineer in charge of the construction of the Sirsa Canal are at Karnal. The Western Jamna and Sirhind Canals are included in the Circle of the Superintending Engineer, Cis-Satlej Circle, whose head-quarters are at Ambala. The Grand Trunk Road in the Karnal District is under the Executive Engineer, Provincial Works Division, Ambala, who has charge of the public buildings of the district, while he is subordinate to the Superintending Engineer, 2nd Circle, at Ambala. The Military buildings (stables for the cattle and horse farms) are in charge of the Executive Engineer, Military Works, at Ambala, and the Superintending Engineer, Military Works, at Lahore. The Post Offices are controlled by the Superintendent of Post Offices at Dehli.

SECTION B.—LAND AND LAND REVENUE.

Introductory.

299. It may be imagined, from the manner in which the district was constituted, that its revenue history is exceedingly complicated. The primary division of the district is into two portions—that which came to us in 1803 and formed part of the old Panipat district, and that which came to us through escheats of the territories of Sikh chiefs brought under our protection in 1809, and was included in the old Thanesar district. The settlement of the former was revised by Mr. Ibbetson, in 1872-80, that of the latter has recently been revised by Mr. Douie. Each of these main divisions may again be sub-divided. Of the Panipat district, the part assigned to the Mandals has a very different fiscal history from the *khalsa* portion; while of the Thanesar district, nearly the whole of the Kaithal *tahsil* and a few villages in the Indri Nardak were settled separately from the rest of *pargana* Indri. Thus the present section will be divided into three portions, the first treating of Kaithal and Indri, the second of the old Panipat district, and the third of general matters common to both.

PART I.—KAITHAL AND INDRI.

Sikh revenue system in Kaithal.

300. The Sikh revenue administration of the Kaithal tract is thus described by Captain Abbott:—

"The revenue collection was nominally a *batai* of one-third or one-fourth of the produce, with *zabti* at fixed rates of one rupee per *kachcha bigah*. The one-third produce was taken generally, but one-fourth in some of the Bangar villages; but in addition to this numerous taxes made up the revenue. In the *parganas* where the *rabi* crop is unknown, and indeed in others where it promised unfavourably, an arbitrary assessment was fixed, which, in addition to the numerous taxes, was collected by the *zamindars* by a "*bachh*" upon cattle, polls, hearths, and ploughs in the Bangar, but on the three latter only in the Khadir *parganas*. It may be interesting and instructive to record the items that

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Sikh revenue system in Kaithal.

composed the revenues of a village for a *rabi* instalment as demanded by the state, and which it must be remembered is exclusive of many items that swell the village account. For instance, the village of Harsaula paid as follows :—

	Rs.	A.	P.	Rs. A. P.
Mushakhsa, or fixed demand for one crop				310 0 0
Percentage on do. at Rs. 35½[1]	75	0	9	
Sirdebi	30	1	0	
Nazrana to State	19	0	0	
Do. to *Musahibs*	6	0	0	
Nazr to (all the Ranis)	18	0	0	
Bricks to repair fort, &c.	13	12	9	
Kazi allowance to	1	0	0	
Talabana	1	0	0	
Nira,[2] rate fixed at Rs. 4	4	0	0	
Thanadari	14	0	0	
Ugahi or expense of collections	7	3	6	
Amini @ 1-8 per cent. and Record Keeper ...	4	10	6	
				192 12 0
				502 12 0

"This is not given as a solitary instance, but as a type of the prevailing system. Each village furnished a certain number of *Chamars* who, if not required, paid one rupee per head per harvest. The sum above entered as *jama* was arbitrarily fixed, according to the season and past collections. When the *batai* prevailed, which was usual only when the crops promised well, a poll tax of Rs. per head was taken in addition, but a cattle tax had never been demanded by the State as is usually supposed. When the *Mushakhsa* system was adopted, it included the poll tax. * * * The powerful villages only paid so much revenue as they found it convenient to do : those of Pai and Chhatar invariably resisted the forces of the Bhai, which were either unable or unwilling to make an impression upon them."

Summary Settlements.

301. Kaithal was occupied in April 1843 and in the November following Major (afterwards Sir Henry) Lawrence had completed a summary settlement for three years. His interesting report is printed in the "Extracts from Reports on the Settlement of the *parganahs* formerly comprised in the Thanesar District." He got statements which he considered "tolerably correct" of the Sikh collections from 182 to 1837. He says that he made this ten years' average the basis of his assessment; but in fact he did not follow his figures at all closely, but trusted a good deal apparently to his personal inspection of villages. The revenues he fixed were in most cases a good deal heavier than those paid before the recent revision, though the *tahsil* was in a very undeveloped condition. No doubt the assessment, like all the summary settlements made in the lapsed Sikh states on this side of the Satlej, was too severe. At the expiry of three years it was continued for another year by Captain Abbott, the cases of

(1).—Apparently a mistake for 25½.

(2).—*i. e.* fodder.

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some villages, which objected to renew their lesses on the old terms, being considered and a few reductions granted.

Captains Abbott's Regular Settlement 1847.

302. Lawrence believed that the *tahsil* would develope rapidly, and somewhat rashly prophesied that when his three years' settlement was over an enhancement of 60 per cent. would be realizable. As a matter of fact progress was slow. The seasons were unfavourable both as regards health and crops; and men's minds were disturbed by the fear that Kaithal would be handed back to Bhai Ude Singh's widow, or to his nearest collateral relative, the Bhai of Arnauli. When Captain Abbott made his Regular Settlement in 1847, he did not enhance the total demand to any great extent, but he altered the distribution a good deal, relieving the estates he considered weak. He failed to see that Lawrence's revenue was far too high. Captain Abbott assessed few of the Powadh villages. The demand he fixed was collected for eight or nine years without the accrual of very heavy balances; but his record and assessment were both considered so bad that the settlement was not reported to Government for sanction, and finally Captain Larkins was ordered to do the work over again.

Captain Larkins' Regular Settlement, 1856.

303. His operations lasted from 1853 to 1856. He divided the villages, with the exceptions of one estate settled by Mr. Wynyard, into 21 circles, some of which do not now belong to the *tahsil*. It would be fruitless to detail the assessment rates, which were pretty numerous and founded on more minute distinctions than settlement officers of the present day think it worth while to make. But the following table, which excludes the Pehowa estates recently transferred to Kaithal, shows with approximate accuracy the average rates used by Captain Larkins in assessing the chief classes of land as then recorded in the villages included in the assessment circles of the revised settlement :—

CLASS.	NARDAK.		BANGAR.		ANDARWAR.		NAILI.		POWADH.	
	Per cent. of area.	Rate.	Per cent. of area.	Rate.	Per cent. of area.	Rate.	Per cent. of area.	Rate.	Per cent. of area.	Rate.
		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs A. P.
Niai chahi.. ..	..	..	..	..	7	2 12 0	3	2 4 11	10	2 5 9
Rausli	..	..	..	..	30	2 2 0	7	1 12 5	13	1 12 9
Dakar abi	..	..	..	..	..	..	4	1 5 6	..	..
Rausli barani.. ..	62	0 11 2	91	0 11 3	58	1 1 0	35	1 0 8	42	1 2 5
Dakar "	30	0 10 2	6	0 11 11	..	..	46	1 3 5	2	1 1 9
Bhur "	..	..	..	..	..	..	..	..	29	0 10 5
Rate on cultivation of revenue by rates	..	0 11 6	..	0 11 8	..	1 7 11	..	1 3 10	..	1 3 6
Rate on cultivation of revenue as assessed	..	0 14 1	..	0 10 3	..	1 10 2	..	1 4 10	..	1 4 1

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Captain Larkins' Regular Settlement, 1856.

Of the 89 Pehowa villages added to Kaithal in 1889, 81 are included in the Naili Pehowa and Bangar Pehowa circles, the remaining eight formed part of the Southern Chachra Circle of Pipli, and were settled by Mr. Wynyard, as they had been included in the Thanesar State. Captain Larkins' average rates in Pehowa were approximately :—

Class.	Naili.	Bangar.
	Rs. A. P.	Rs. A. P.
Niai Chahi	2 8 0	2 8 0
Rausli Chahi	1 14 0	1 14 0
Dakar Abi	1 9 0	1 8 0
Ransli Barani	1 1 0	1 0 0
Dakar "	1 1 0	0 15 0
Rate on cultivation of revenue as assessed...	1 5 5	1 1 9

The following table shows the revenue which he imposed on each Circle, and the revenue as it existed immediately before the recent revision :—

DETAIL.		Nardak.	Bangar.	Andarwar.	Powadh.	Naili Kaithal.	Naili Pehowa.	Bangar Pehowa.	Total.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	R.
Demand of Captain Larkins' Settlement, 1856.	Revenue	33,793	48,444	15,812	[illegible]	46,609	21,335	11,795	2,03,[illegible]
	Rate on cultivated area.	0-15-3	0-10-6	1-10-2	1-4-1	1-4-9	1-5-5	1-1-9	0-15-11
Demand as it stood before recent revision	Revenue	34,081	49,268	15,682	25,614	46,626	21,221	11,413	2,03,[illegible]
	Rate on cultivated area.	0-6-3	0-5-4	1-4-8	1-2-10	0-14-10	0-14-6	0-3-4	[illegible]

The figures for the Pehowa Naili and for the Powadh include the revenues of two small estates settled by Mr. Wynyard.

In some circles considerable sums of money were charged for old and new waste, and this explains the excess of the revenue actually taken over that brought out by the rates.

Captain Larkins reduced Captain Abbott's demand by about one-fifth. His settlement worked well. The Kaithal and Pehowa Bangar and the Nardak rates were not too heavy considering the boundless room for expansion then existing. It must be remembered that large areas were recorded as *jadid*

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Captain Larkins' Regular Settlement, 1856.

which under our present system would be assessed as cultivated. When allowance is made for this the Bangar dry rate did not exceed eight-and-a-half annas. The Andarwar dry rate was certainly heavy. There is nothing to justify the wide distinction made between the assumed value of unirrigated soil in the Andarwar and Bangar. But here, too, there was a good deal of land to be broken up. The Naili assessment appears to have been severe, but it was far lower than that made by Captain Abbott. The Powadh was leniently treated. It is curious to find the hard *sailab* of the Naili (most of which was classed by Captain Larkins as *dakar barani*), which yields crops whose precariousness cannot be exaggerated, assessed at higher rates than the light productive loam of the Powadh. Neither Captain Abbott nor Captain Larkins grasped the fact, that, given a scanty rainfall and no irrigation, it is the lighter loams that are the best soils. Of course where all the land is hard, as in the Nardak, the position of the stiffest soils may make them the best, but that is due to the fact that rain water drains into them off the higher lands.

Revenue history after Captain Larkins' Settlement.

304. The changes in the demand between 1856 and the recent revision of settlement were unimportant. About Rs. 3,000 were added on account of the assessment of petty rent free grants, and some Rs. 2,000 taken off on account of reductions of assessment granted by Captain Elphinstone and Captain Davies, when they revised Thanesar Settlement.

Suspensions were granted in the famines of 1868-69 and 1877-78, in 1880-81, and probably in some other years. Since the revision of settlement began in 1882 the policy adopted has been to suspend freely in bad seasons in the Bangar, Nardak, and Naili. In 1883-84, Rs 38,774 were suspended, in 1884-85 Rs. 18,462, in 1885-86, Rs. 40,819, and in 1887-88 Rs. 15,473, making a total of Rs. 1,13,528[1]. Of this large sum only Rs. 2,805 remained uncollected in December 1888. Government runs little risk in marking large suspensions here, for it is the very tracts in which failure is most frequent and most complete that have the largest surplus in good years. The relief to the people is great, for they are saved from borrowing at a ruinous rate of interest. If this course has been good policy in the past, it will be absolutely necessary in the future, now that the demand in the Nardak and in the Kaithal and Pehowa Bangars has been greatly enhanced.

Revised Settlement of 1888.

305. Before discussing the revenue history of the Indri *pargana* it will be convenient to finish that of the Kaithal *tahsil* by describing the result of the recent revision of settlement carried out by Mr. Douie. The Karnal-Ambala settlement embraced the Kaithal *tahsil* and Indri *pargana* of Karnal, and the Pipli and Jagadhri *tahsils* of Ambala. It lasted from May 1882

(1) These figures relate to the Kaithal *tahsil* as it was constituted before 1889.

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to April 1889. The 89 villages of the Pehowa *pargana* transferred to Kaithal at the close of Settlement were reported upon in the Pipli Assessment Report.

Revised Settlement of 1888.

The following account of the assessment of Kaithal is taken almost entirely from Mr. Douie's Settlement Report.

Assessment Circles.

306. The *tahsil* as now constituted includes seven assessment circles[1] and a fragment of another circle, the bulk of which has been left with Pipli. The division into circles would have been somewhat modified, had Pehowa formed part of Kaithal when it was assessed. A short account of the assessment of each circle is given in the following paragraphs.

Assessment of Powadh Circle.

307. The Powadh includes most of the villages to the north of the Ghagar. Out of 37 estates 27 are wholly, and 2 partly, in jagir. The total area is 59 square miles, of which 34 are cultivated. The grazing lands are worth very little. The rise in cultivation and jadid amounted to only one per cent. Population advanced by 10 per cent. between 1855 and 1868, and has since remained stationary. Three-fourths of the land is owned by Jats and Jat Sikhs, and most of the rest by Rains and Gares. The cultivators are therefore of an excellent class, and their condition is generally satisfactory, though there is no superabundant prosperity. Transfers are rare, and the average price of the land sold is only Rs. 20 per acre, or 16 times the revenue. The average sowings for the four years 1883-84 to 1886-87 were 99 per cent., and the average on which crops were reaped 89 per cent., of the recorded cultivated area. These figures are low for a tract with so much irrigation and show that the dry cultivation is precarious, though less so than in any other circle. The batai rate is usually ⅓rd and the few cash rents are very low, averaging Rs. 3-8-0 for irrigated, and Re. 1-6-2 for unirrigated, cultivation. The half assets share is 14 per cent., and the half assets estimate only amounted to Rs. 23,653.

The revenue, was Rs. 25,626 rate Re. 1-2-10 per acre of cultivation. The proposed rates, which were approved by Government, were :—

Detail.	Acres.	Rate.	Demand.
		Rs. A. P.	Rs.
Chahi	4,716	2 12 0	12,969
Abi and niwan	11,487	1 0 0	11,487
Tibbi, dahr, and sailab	5,565	0 11 6	4,000
Total	21,768	1 4 11	28,456

(1) For the physical features of the different Circles see paras. 7 to 9.

The revenue actually imposed amounted to Rs. 28,510. The enhancement was Rs. 2,884 or 11 per cent. The incidence is Re. 1-4-11 per acre on cultivation and Re. 1-7-5 per acre of crops harvested in the 4 years 1883-84 to 1886-87, Rs. 15 per plough, and Rs. 10 or 11 per owner.

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Assessment of Andarwar Circle.

308. The small Andarwar circle is on the watershed between the Sarusti and Ghagar, contains 16 villages, and covers an area of 53 square miles, less than two-fifths of which are under tillage. Most of the uncultivated land is bad kalar, and little expansion can be looked for. Of the cultivation, 46 per cent. is recorded as well-watered, but even in the driest year the actual irrigation falls far short of the measurement figures. Since the settlement of 1856 cultivation and jadid have risen by 18½ per cent., but the advance is in the uncertain dry cultivation. There has been no increase in the number of wells. In 1855 the population was dense, and it has increased but little since. The land-owners are sturdy and hardworking Jats. Only three of the villages can be called very prosperous, four or five near the Ghagar and Sarusti are in a declining state owing to the prevalence of disease, the rest are in ordinary circumstances. The soil is a strong loam and the dry crops are very precarious. But, thanks to the diligence with which the wells are worked, most estates can pull through a bad season or two without assistance. The grazing lands are very bad, but fodder crops are largely grown, and the people keep a large number of cattle.

The revenue amounted to Rs. 15,712 falling at Re. 1-4-7 per acre of cultivation. It was very high judged by Kaithal standards and much heavier than that paid in the Pehowa Bangar and Indri Nardak. The half assets estimate was only Rs. 10,403. The rates proposed by Mr. Douie and accepted by Government and the resulting demand were :—

Detail.	Acres.	Rate.	Demand.
		Rs. A. P.	Rs.
Chahi	3,404	2 13 0	9,574
Other cultivated land	8,730	0 12 0	6,548
Total	12,134	1 5 3	16,122

This involved a trifling enhancement of 3 per cent. The revenue actually assessed was Rs. 16,380, being 1-5-7 per acre of cultivation and 1-12-5 per acre of crops harvested in four years, about Rs. 20 per plough, and Rs. 6 or 7 per owner.

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Assessment of Nardak Circle.

309. The Nardak circle contains 96 estates occupying an area of 384 square miles, of which rather more than one-third is now under cultivation. Only one per cent. of the cultivated land is irrigated from wells. Since the settlement of 1856 cultivation and new fallow had increased by 103 per cent., ploughs had about doubled, and population had risen by 45 per cent. About half of the soil is owned by Rajputs. The remaining half is chiefly in the hands of Rors, Jats, Brahmans, and Gujars, good cultivators, Jats and Rors, owning less than one-third of the whole. The tract is healthy and the people are strong of body and generally in fair circumstances. There is a good deal of debt, but this is often traceable to the expenditure of money in criminal cases, for cattle theft is still common. Transfers are rare, because land in these parts is a very bad form of security. Rents are very low, and the amount of the half assets share was taken as 9 per cent. for irrigated and 11 per cent. for unirrigated crops. The soil is strong and stiff, yielding excellent crops when the rainfall is copious, which it rarely is in the south of Kaithal. In a bad season the failure is complete. Taking an average of four years 75 per cent. of the recorded cultivated area was sown, and crops were reaped off 59 per cent. The percentages of crop areas to cultivated area for four years were 24, 93, 74, and 43. The chief crops are millets, pulses, and rice. The people depend largely on their cattle, and some of the villages let grazing to outsiders.

The demand was Rs. 34,081 falling at annas 6½ per acre of cultivation. This was easily paid in good years, but in bad years the people had to borrow both to feed themselves and to pay the revenue. The rates proposed and the resulting revenue were:—

Detail.	Acres.	Rate.	Demand.
		Rs. A. P.	Rs.
Chahi and abi	673	2 0 0	1,346
Dahr and sailab	17,445	0 7 3	7,905
Other cultivated land	69,504	0 6 0	26,064
Grazing land	145,671	0 1 4	12,133
Add owner's rate at ⅓rd occupier's rate	...	...	3,744
Total	233,293	0 9 4 on cultivation.	51,192

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The half assets estimate amounted to Rs. 34,861 or adding Rs. 4,000 for the Government share of the *jowar* straw to Rs. 38,861 while the proposed assessment on cultivation was Rs. 38,994. Government decided that the owner's rate must be fixed at ½ occupiers rate as in the rest of the district, and the grazing rate raised to 1⅜ anna. The revenue assessed was Rs. 49,175 or adding Rs. 5,613 on account of owners rate Rs. 54,788. The latter sum fell at 10 annas on the cultivated area, and 17 annas on the average area of crops harvested in four years.

Assessment of Kaithal Bangar Circle.

310. The Kaithal Bángar, which occupies the western half of the southern uplands has an area of 362 square miles, nearly two-thirds of which are under tillage. The well irrigation is of very trifling amount. The increase in cultivation and jadid since 1856 was 73 per cent., and the rise in the number of ploughs 65 per cent. In some of the largest estates there is no waste left, and in most villages the plough has been driven quite as far as is desirable. Excluding the town of Kaithal the increase of population amounted to 38 per cent. The landowners are mostly Jats. They are as a rule in very fair circumstances, but their state cannot be described as one of abounding prosperity. There is a good deal of debt, but transfers are few and unimportant. The soil is lighter than in the Nardak, but except in the south-west of the circle may fairly be described as stiff. The crops grown are the same as in the Nardak, but the tillage is more careful. The fluctuations from year to year are extreme. The four years' average showed the area sown as 82 per cent. and the area off which crops were reaped as 65 per cent. of the cultivated area. The detail of crops harvested for the four years was 21, 93, 91, and 53 per cent. Though the grazing area has been much curtailed, the people manage to keep a large number of cattle. Rents, where they exist at all, are low, and the half assets share is the same as in the Nardak.

The demand was Rs. 49,268 falling on cultivation at annas 5⅓ per acre. The proposed rates and the resulting revenue were :—

Detail.	Acres.	Rate.	Demand.
		Rs. A. P.	Rs.
Cháhi	800	2 0 0	1,600
Other cultivated land	146,999	0 7 0	64,312
Grazing	69,394	0 0 6	2,171
Add owner's rate at one-third occupier's rate	...	...	5,108
Total	217,193	0 7 3 on cultivation.	73,191

This gave an increase of 48½ per cent. The half assets estimate including Rs. 10,000 for the Government share of jowar straw was Rs. 72,988, and the proposed assessment on cultivation Rs. 71,020. The owner's rate was raised to half

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Assessment of Kaithal Bangar Circle.

occupier's rate, as in the Nardak, and the grazing rate to one anna per acre. The revenue actually assessed was Rs. 69,120, or including owner's rate Rs. 76,780. The latter sum fell on cultivation at 8⅓ annas and on the average area of crops harvested at about 13 annas.

The demand finally imposed on the Nardak and Bangar is a pretty stiff one in existing circumstances, and Government has recognized the fact that suspensions must be freely given in bad seasons. The circumstances of many of the estates in both these circles will soon be greatly altered by the completion of the Sirsa Canal.

Assessment of the Kaithal Naili Circle.

311. The Kaithal Naili consists of the villages flooded by the Ghagar and the Sarusti. It has an area of 218 square miles, of which 79 are cultivated, 87 come under the head of culturable waste, and the rest is barren. There is room for expansion, but little can be looked for unless the flood water is better distributed, and disease, which is the curse of the whole tract, is checked. The rise in plough oxen was 19 per cent. and in cultivation and jadid 20 per cent. The increase in cultivation consisted to a great extent in the bringing again under the plough of land which had been for a time abandoned. Population had remained stationary. It is of a more mixed character than in the circles already described, but Jats predominate in the Ghagar, and Rajputs and Gujars in the Sarusti, villages. The condition of the land-owners is unsatisfactory, and the Ghagar villages are in a very depressed state. The precariousness of the harvests cannot be exaggerated, but the prime evil from which the people suffer is disease. The average area of crops sown is 85 per cent. and of the crops harvested 63 per cent. of the cultivated area. The detail of crops harvested for four years is 29, 93, 70, and 59 per cent. Transfers are more numerous than in any other circle, but the total is not large, for there is little demand for land. Rents are low, and the Government's half assets share is 11 per cent.

The villages may be divided into two groups, some of the leading statistics of which are given in the following table:—

Detail.	Cultivated area and Jadid.		Population.		Ploughs.		Wells.		Per cent. of crops harvested to total cultivated area.	Demand before revision with rate on cultivation and on average area crops harvested.
	1855.	Now.	1855.	1881.	1855.	Now.	1855.	Now.		
	Acres.	Acres.								
47 Ghagar villages ..	14,123	13,270	9,960	9,153	880	906	192	180	54	14,558 1-3-6 1-13-9
51 Sarusti villages ..	29,587	30,292	24,160	24,898	1,481	1,870	244	278	66	51,668 0-13-5 1-4-5

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Assessment of the Kaithal Naili Circle

Whatever improvement has occurred belongs to the second group. The Ghagar villages have declined. If the bed of the Puran Ghagar (para. 13) is cleared of silt yearly, and this should certainly be done, half of the Ghagar Naili villages may be raised out of their present wretched condition.

The demand was Rs. 46,601, rate annas 14-10 per acre cultivated. The half assets estimate was only Rs. 26,856. The proposed rates and revenue were :—

Detail.	Acres.	Rate.	Demand.
		Rs. A. P.	Rs.
Chahi and abi	2,733	2 12 0	7,516
Sailab	28,802	0 14 0	25,202
Other cultivation and jadid ...	21,028	0 9 0	11,827
Grazing	53,600	0 0 9	2,512
Total ...	1,06,163	0 15 0 on cultivation.	47,057

The area of *jadid* is large and was assessed in this circle as cultivated land. Government raised the grazing rate to $1\frac{1}{6}$ anna. The demand assessed was Rs. 48,160, rate $15\frac{1}{4}$ annas on cultivation and about Rs. 1-8 on average area of crops harvested.

Though the revenue of the whole circle was little altered, the internal distribution was much changed. In the Ghagar estates large reductions were granted, but these were more than counterbalanced by the increase taken in the Sarusti villages.

Assessment of the Pehowa Naili.

312. The Northern part of the Pehowa Naili is flooded by the Umla, and the Southern by the Sarusti. There are five Bangar estates resembling the villages in the Andarwar circle, which they adjoin. The Circle has an area of 125 square miles, of which 37 are cultivated. Cultivation and *jadid* showed an increase of 18 per cent., and ploughs of 16 per cent., while population had declined by 6 per cent. Jats prodominate in the Umla Naili. Within the last ten years the floods of the united Markanda and Sarusti in the South of the Naili have increased in volume, and it is in this part of the circle that the spread of cultivation has mostly occurred. The 53 estates may conveniently be divided into three groups, some of the leading statistics of which are shown below :—

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Assessment of the Pehowa Naili.

DETAIL.	Cultivated area. Settlement of 1847.	Settlement of 1854.	Settlement of 1887.	Population excluding Pehowa 1855.	1881.	Wells.	Percentage of sailab to total cultivation.	Percentage of rabi crops to total crops.	Jama and rate on cultivation.
	Acres.	Acres.	Acres.						Rs.
5 Bangar estates	659	899	1,347	1,007	1,085	20	..	53	1,077 0 12 9
24 Umla	11,280	8,029	9,469	8,851	8,068	150	50	51	10,576 1 1 10
24 Sarusti	7,639	7,070	12,670	6,529	7,142	63	76	72	9,568 0 12 1
Total ..	19,578	15,998	23,486	16,387	16,295	233	61	62	21,221 0 14 6

There are wide differences between the Umla and the Sarusti villages. The former have decidedly a better agricultural population and have more well irrigation. In other respects they are inferior. Nearly the whole of their flooded land consists of dahr, in which coarse rice is the principal, and often the only, crop. The grazing is miserably poor.

In the Sarusti villages the autumn harvest is comparatively unimportant. Much land lies under water in the rains, and, as soon as it is dry enough, is hastily ploughed and sown with gram or mixtures of wheat or barley with gram. Nothing could be rougher than a great deal of the cultivation. But in Pehowa and a few of the neighbouring villages the stiff soil is being improved by deposits of silt. The Sarusti floods in Pehowa scarcely ever fail and the spring harvest is fairly secure, but the Umla floods are most uncertain.

The demand was Rs. 21,221 falling at Re. 0-14-6 on cultivation. The half assets estimate was Rs. 14,299. The rates proposed by the Settlement Officer and sanctioned by Government and the resulting demand were :—

Detail.	Acres.	Rate.	Demand.
		Rs. A. P.	Rs.
Chahi	1,807	2 0 0	3,614
Other cultivated land ...	21,679	0 12 0	16,259
Grazing	38,101	0 0 6	1,191
Total ...	61,587	0 14 4	21,064

The revenue given out was Rs. 21,510 falling at 14¾ annas on cultivation and at Re. 1-7 on the average area of crops harvested in 4 years.

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Assessment of Pehowa Bangar Circle.

313. The Pehowa Bangar covers an area of 79½ square miles, of which 31 are cultivated.

Cultivation and jadid had risen by 46 and population by 20 per cent. since the settlement of 1856. Jats and Rors own one-half of the total, and till two-thirds of the cultivated area. They are generally in good circumstances. The other tribes of any importance are Gujars and Rajputs, who depend a good deal on cattle rearing and are usually very careless cultivators. Tenants are not numerous and true rents are a novelty. The Government's share of the produce was 11 per cent., and the half assets estimate Rs. 12,510. A good deal of the new tillage is of a very uncertain character, the land being roughly ploughed in a favourable season, and left alone in a poor one.

The average area on which the crops were harvested in the 4 years 1883-84 to 1886-87 was 37 per cent. below the cultivated area of the circle. The detail is 43, 99, 76, and 35.

Owing to the increase of cultivation, the demand had become light and the circle had prospered, although the proprietors had been made to pay in good and bad years alike. The revenue was Rs. 11,413, above one-half of which was contributed by four large estates, two belonging to Rors and two to Jats. The rate on cultivation was 9⅓ annas per acre.

The sanctioned rates and the resulting demand were :—

Detail.	Area.	Rate.	Demand.
	Acres.	Rs. A. P.	Rs.
Well irrigated	2,080	2 0 0	4,160
Dry	17,631	0 8 6	9,393
Grazing	26,967	0 0 6	842
Total	46,728	0 11 8	14,395

The revenue actually announced was Rs. 14,230, rate Re. 0-11-7 on cultivation and about Rs. 1-2 on the average area of crops harvested.

Assessment of 8 estates included in Southern Chachra Circle

314. Some of the Chachra estates transferred the close of the settlement to Kaithal were in a very broken condition. Between 1855 and 1881 the population of the eight villages had fallen off by 23 per cent., and between the two settlements many wells had fallen out of use. The crops are extremely precarious. The demand was lowered from Rs. 1,835 to Rs. 1,490.

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General result of reassessment of tahsil Kaithal.

315. The general result of the reassessment of tahsil Kaithal was to raise the demand from Rs. 2,05,457 to Rs. 2,48,575 or by Rs. 43,118. In addition an owner's rate which, calculated on the average receipts from occupier's rate for 5 years, amounted to Rs. 13,273 was imposed for the first time. The new demand came into force in the Pehowa villages in Kharif 1887 and in the villages of the old Kaithal tahsil in Kharif 1888. The term of the settlement has not yet been finally determined, but it will not exceed 20 years.

Optional fluctuating assessment in case of many Naili estates.

316. One peculiar feature of the assessment must be noticed. During settlement operations a number of estates in the Kaithal, and one village in the Pehowa, Naili, besides two Chachra estates were put under a fluctuating system of assessment owing to the extreme precariousness of the crops and the distressed condition of the landowners. There was much to be said in favour of perpetuating and extending such a system. But in view of the objections of the people and the difficulty of securing proper supervision, it was decided not to refuse a fixed assessment to any estate desiring it, but to give most Naili and all the Southern Chachra villages the option of accepting at once or at any time during the currency of the settlement an assessment fluctuating with the area of crops harvested. Full details will be found in the settlement report. As was anticipated all estates elected for a fixed demand, but some of them may be glad to exchange this for a fluctuating assessment in the future, and they should be given every opportunity of doing so.

Sikh Revenue system in Indri.

317. Indri was not like Kaithal the appanage of a single State, but was divided between Ladwa, Thanesar, Radaur, Kaithal, and a number of petty chiefs. Here as rule the Sikhs took a share of the total produce, ½, ⅓, or ⅖, by appraisement for most crops, for others, such as poppies, tobacco, cane, cotton, and chari, cash *bigah* rates were charged. Deductions from the total produce were first allowed for the dues of the village menials. Even where the rate was moderate, the demand might be excessive, owing to a dishonest estimate of the outturn. This was the case in the Khadir villages of the Thanesar State. The rate there was only one-fourth, but the appraisement was very severe. In addition, numerous cesses were levied. Captain Abbott gives a formidable list of these, but it is too long to quote. He estimated the total to amount to a charge of 16¼ per cent. on the revenue demand.

Captain Larkins calculated that, in Thanesar, where one-fourth was the share of produce taken by the State, little more than half the outturn remained in the hands of the proprietors, after all the cesses had been paid. But this appears to be an exaggeration, as his own figures show that the State only realized from 20 to 30 per cent., in addition to the receipts from appraisement and cash rates. What may have stuck to the finger, of the servants of the State is another matter.

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Sikh Revenue system in Indri.

Every Sikh took as much as he could, but the smaller men could not squeeze the people so effectually as the more powerful chiefs. The Ladwa Raja was strong enough to exact 4 sers per maund, or 10 per cent. in addition to the share by appraisement, on the ground that he must be insured against loss from errors in weighment, wastage, &c. The leading men in each village were given an allowance of 3, 5, or 10 per cent. on the revenue collections; the highest rate being given to the strongest villages. And influential lambardars were often allowed to hold a well rent-free, or given the receipts by appraisement of 5 or 6 *bigahs* of land. Time has softened the recollection of the worst evils of the Sikh system, and with all its irregular exactions, it apparently pressed less heavily on the people than our early cash assessments, exacted rigidly without regard to the fluctuations of the seasons. The leading zamindars were treated with a greater show of liberality than under our rule. They were fed at the chief's expense when they went to his head-quarters, and presents were often given on the occurrence of marriages in their families. Hence the lambardars sometimes *speak* in a tone of regret of the old system, but any attempt to revert to grain collections or appraisement would be resisted to the death.

The Sikhs dealt as they pleased with the village waste. Grass and game preserves were formed, and new villages were located in lands carved out of the waste of the older estates. More than one-fourth of the villages of the *pargana* were founded in this way during Sikh times. There was one check on the exactions of the conquerors. If the villagers were pressed too far, they abandoned their lands, and the revenue disappeared with them.

Summary Settlements.

318. Estates which lapsed to us were summarily assessed. The principal escheats which occurred before the first regular settlement and which affected villages included in Indri, are shown below:—

Name of State.	Date of lapse.	Number of villages included in present Indri pargana.
Radaur	1828	6
Thanesar, (Bhag Singh's two-fifths share).	1832	17
Kaithal	1843	10½
Ladwa	1846	20
Thanesar, (Bhanga Singh's three-fifths share).	1850	29½

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Summary Settlements.

All the villages of the *pargana* with the exception of the seven* estates transferred from Muzaffarnagar, were brought under regular settlement by Mr. Wynyard or Captain Larkins between 1849 and 1856.

Many of these estates had been previously settled in a summary way by various officers. The principal summary settlements were made by Captain Murray, Captain Abbott, and Captain Larkins. The first mentioned Officer settled Bhag Singh's two-fifths share in the Thanesar estate, which lapsed to Government on the death of Bhag Singh's grandson, Jamiat Singh, in 1832. Captain Murray's settlement report cannot be traced, but the system he followed elsewhere, and which he doubtless adopted here also, was to fix the revenue "by deducting pachotra, an allowance of about five per cent. from the average collections of preceding years." That is to say, the basis of the assessment was the assumed value of the grain realized by the Sikh Government. Such a settlement could not fail to be oppressively high.

The villages of the Ladwa State, which lapsed in 1846, were summarily settled by Captain Abbott. For most of the villages, Captain Abbott had returns of the Sikh collections for the previous five years. He struck off the cesses which he calculated to amount to 16½ per cent. on the receipts by appraisement of crops and *zabti* rates, and took a cash assessment nearly equal to the balance. As the *batai* rate was one-third in some villages, and one-fourth in others, which are the existing rent rates, Captain Abbott's assessment took for Government the whole of what we should now call the owner's assets. Lambardars received an allowance of 5 per cent. deducted from the revenue.

Bhanga Singh's three-fifths share in the Thanesar estate lapsed in 1850, and was summarily settled by Captain Larkins. He arrived at his demand by the same process as had been followed by Captain Abbott in assessing Ladwa, but Mr. Wynyard, who condemned most of the summary settlements for their extreme severity, made an exception in favour of Captain Larkins' work.

The regular settlement 1849—1856.

319. Mr. Wynyard's regular settlement of the Thanesar District was begin in 1848, and was not finished when he left the District in 1852. The work was made over to Captain Larkins for completion, but it was soon found that the assessments already given out by Mr. Wynyard must be revised. Captain Larkins reported the result of his operations to the Commissioner in 1856. Mr. Wynyard's assessment circles and rates were very numerous. He states that the end of all his

* An eighth estate has been transferred to Karnal by river action since the completion of the revised settlement.

enquiries was "to ascertain as nearly as possible the true rental, to leave one-third of that for the zamindar's profits, and to fix the remaining two-thirds as the Government jama."

The regular settlement 1849—1856.

The amount payable to chaukidars was deducted from the demand by two-third's assets rates, in order to fix the realizable jama; but in many cases very considerable additions were made for waste.

It is quite clear that Mr. Wynyard intended to make a lenient assessment. He wrote himself :—

"I have always borne in mind that a settlement, to be paid with ease, must be a light one, and I have never forgotten the constant injunctions that the assessment should be moderate. My remissions from the old jama are heavy."

He inveighed strongly and indeed almost violently against the incredible severity of some of the summary settlements, and the rigorous manner in which an exorbitant demand was wrung from the people by the officers who had charge of the Ambala District. Neverthelest, his own settlement became a by-word in the province for over-assessment, and had to be revised by four different officers within the first 10 years of its currency. It is necessary to explain the reasons why Mr. Wynyard's good intentions bore such unfortunate fruits.

Reasons for the break-down.

320. The chief causes of the failure of the settlement appear to have been four, for *three* of which the settlement officer was responsible, while the fourth arose from circumstances over which he had no control, and which he could hardly have foreseen. These were :—

(1) An over-measurement of well irrigated land.

(2) An exorbitant assessment of the waste.

(3) The severity of the rates imposed on the precarious dry cultivation.

(4) The great fall of prices which began about 1851, and lasted till the famine of 1860-61.

Over measurement of well lands, though it occurred in some villages, was not a general cause of error in the part of the Thanesar District included in the present Indri *pargana*. When the waste area was large heavy progressive assessments were imposed in the hope of forcing the landowners to rapidly extend cultivation, which they had not the means or the inclination to do. Mr. Wynyard's chahi rates were not in themselves exorbitant, though they were applied to too large an area, but his *barani* rates were very severe, considering the poorness of the soil in the Khadir, and the extreme uncertainty of the crops in the uplands.

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Reasons for the break-down.

In the annexed table, Mr. Wynyard's assumed prices for the principal grains are compared with the average prices received by *zamindars* for the six years, 1854 to 1859:—

	Wheat.	Barley.	Gram.	Maize.	Toria.	Jowar.	Bajra.	Coarse Rice.
Mr. Wynyard's assumed prices	37	48	40	43	28	42	42	55
Average prices received by *zamindars* between 1854—1859	45½	67½	62½	53½	37	54	50	59¼

Many of the villages had never been summarily settled, and the transition from grain to cash payments came at a particularly unlucky time. Nothing but a very light assessment could have stood such a strain, and Mr. Wynyard's demand was heavy.

Revisions of the regular settlement.

321. From 1849 to 1862 the *pargana* may be said to have been always under settlement. Mr. Wynyard's work was reviewed by four officers in succession, with the result that, a dozen years after settlement, there was scarcely an estate left which was paying the revenue originally fixed. The result of the various revisions is shown below, the revenues of the villages which were settled for the first time by Captain Larkins being entered separately to facilitate comparison:—

First regular settlement by whom made.	No. of estate.	Demand of first regular Settlement with rates on cultivation.		Demand of revised Settlements.		
		Initial.	Full.	Larkins.	Busk.	Elphinstone and Davies.
		Rs.	Rs.	Rs.	Rs.	Rs.
Wynyard ...	162	1,45,706	1,55,130	1,44,903	...	...
Larkins ...	75	34,678	35,529	35,519	...	...
Total ...	237	1,80,384	1,90,659	1,80,422	1,66,059	1,59,113
Rate on cultivation.	...	1-9-0	1-10-5	1-9-0	1-7-0	1-6-1

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Revisions of the regular settlement.

The demand before the recent revision was somewhat larger than that shown above as resulting from Captain Davies' revision because the area of petty rent free grants was assessed after settlement and because some villages have been transferred by river action from Muzaffarnagar to Karnal. Generally speaking, Captain Larkins confined himself to striking off the heavy progressive assessments imposed on account of waste, and, as these were severest in the Nardak Circle, his largest reductions were given there. He also reduced the demand when a comparison of the irrigated area recorded with the number of wells seemed to show that there had been an over-measurement of well lands, but he failed to realise that the dry rates were much too high.

His total demand was less than Mr. Wynyard's by 5 per cent.

Captain Larkins' report was written in February 1856, but his returns were inaccurate, and his successor, Captain Busk was ordered to revise them, and also to give further reductions where required. He reported the result in March 1857—(No. 83 A, dated 25th March 1857), but he appears to have given further relief in 1859. He lowered Captain Larkins' demand by 8 per cent.

Captain Busk saw clearly that Mr. Wynyard's rates were too high, and he put the assessments in many circles considerably below that brought out by their application to the cultivated area.

Two revisions had left the demand 13 per cent. lower than that fixed by Mr. Wynyard. But distress in Thanesar appeared to be chronic, and notwithstanding the large measure of relief given, the revenue continued to be realized with the greatest difficulty, coercive measures were constantly adopted, and farms and transfers of revenue paying land and even of whole villages were frequent.

The work of revision was again undertaken. This time it was entrusted to Captain Elphinstone, who carried it out in the spring of 1860. The Commissioner doubted the sufficiency of the relief granted; but before further action was taken the famine of 1860-61 occurred. After the famine, a fresh revision was ordered. It was carried out by Captain (now Colonel) W. G. Davies, in the cold weather of 1861-62, and his proposals were sanctioned by Government two years later, (Secretary to Government, Punjab, to Financial Commissioner No. 416, dated 23rd April 1864).

Very large balances had accrued in the famine year, and most of these were, on Captain Davies' advice, remitted.

The result of four revisions was the reduction of the original demand by Rs. 31,546, or 16½ per cent.

Thanks to the rise of prices coincident with the last revisions, the reduced revenue was paid, though the tract as a whole did not prosper.

Revenue history from 1862 to 1886.

322. The revenue history of the *pargana* from 1862 down to the recent revision of settlement may be briefly dismissed. In 1862 on the transfer of Indri to Karnal the difficulties of the Jat

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Revenue history from 1862 to 1886.

villages in the north of the Khadir and Bangar were aggravated by the ill considered prohibition of p ppy cultivation. Down to the famine of 1877-78 the fatal policy was adopted of collecting the revenue in full in good and bad years alike. Even in the famine of 1868-69 the suspensions appear to have amounted only to about Rs. 1,000. Since 1877-78 a more rational system has prevailed. In the famine of 1877-78 large advances were made for the purchase of seed grain and bullocks, and suspensions were given in many of the villages of the two upland circles. In *kharif* 1877-78 Rs. 4,925 were suspended in the Bangar and Rs. 7,193 in the Nardak. In the next two harvests further suspensions, amounting to Rs. 8,780, were sanctioned in the Nardak. Between the famine of 1877-79 and the *kharif* of 1884, almost all the harvests failed more or less in the drier parts of the tract. Suspensions were given in the spring harvests of 1881, 1882, 1883, and 1884, and in the *kharif* of 1883. In the three harvests, *rabi* 1883, *kharif* 1883, and *rabi,* 1884, above Rs. 25,000 were suspended in the three assessment circles. No demand which is just at once to Government and the people can ever be collected in this tract without frequent suspensions and the suspended revenue should be steadily realized whenever a good season comes round. The realization of this fact is the key to any successful revenue administration of the Karnal district, and this view has been emphatically endorsed by the Punjab Government (Rev. Circ. 31, para. 12).

The revised settlement of 1886.

323. Mr. Douie divided the *pargana* into three assessment circles, Khadir, Bangar, and Nardak. He had only two rates on cultivation, irrigated and unirrigated. The small area watered from tanks and the rich canal *sailab* were treated as irrigated. Warned by Mr. Wynyard's mistake and by the result of his own observations he rejected the recorded *chahi* area for purposes of assessment, and with regard to the results of the crop returns of 3 years took the assessable area per well wheel or bucket in the Khadir and Nardak as ten, and in the Bangar as 13, acres. The *chahi* area of each circle was obtained by multiplying the number of wheels or buckets which it contained by the assumed area watered per wheel or bucket. The unirrigated rates were applied to the *land* watered by wells, and the difference between them and the wet rate was treated as a water advantage rate and distributed over the wells according to the irrigating capacity of each as shown by the crop returns of each year. The difference between the work done by the wells even in adjoining estates and of different wells in the same estate is so great, and the recorded well areas are so untrustworthy in this particular that in order to fix the water advantage rate fairly the average irrigation of each well in every estate was calculated, and a lump *abiana* fixed for it with reference to its apparent irrigating capacity. Of course when the revenue was distributed over holdings the landowners were allowed to modify the distribution of the total village *abiana* over the wells. There was another reason for imposing the water advantage rate on each well as a lump

sum. There is a good deal of irrigation in Indri by men, who, according to the settlement papers, have no share in the wells they use. Sometimes water is admittedly taken only by permission of the owners, but in many cases the irrigators claim a right to a regular turn of irrigation, and assert that they have always enjoyed this. The fields of such men were recorded as well-irrigated; but, if they had been assessed at wet rates and water had subsequently been refused, a grave injustice would have been done. On the other hand, when the irrigated part of the assessment took the form of a water-advantage rate imposed in a lump sum on the well, the recorded owners of the well had to elect, when the demand was distributed over holdings, whether they would pay it all themselves, or divide it between themselves and the other irrigators. When they adopted the latter course, they will be unable to refuse the non-owners water during the term of settlement.

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The revised settlement of 1886.

In view of the diminution in the number of wells in the Bangar and Nardak since the regular settlement, Mr. Douie suggested that, when a well fell permanently out of use, the *abiana* should be remitted, and this proposal has been tentatively approved by Government. Final orders on the subject will be passed when the settlement report is submitted.

General considerations determining the amount of the revised assessment.

324. The Settlement Officer described the chief considerations which determined the amount of his assessments as follows:—

"The main question therefore is:— Has the tract prospered under (the existing) assessment or not? The reductions given at three revisions of assessment, and the fact that a permanent rise of prices was coincident with the last revision, have prevented its ruin, but they cannot be said to have secured for it any abounding measure of prosperity, and I think further relief is required.

Population has declined, and there is some deficiency of agricultural stock. A good many wells have fallen out of use in the Bangar and Nardak, and little has been done to supply their places. In the Khadir, on the other hand, irrigation has increased, and should increase still more, as wells cost little, and expensive bullocks are not required. * * * * The value of land is small. Rents have remained stationary since last settlement, and they are very low. The soil is good in the upland circles, but the seasons are very capricious and the outturn most precarious. In the Khadir, the land is poor, and the most productive part of it, the canal *sailab*, has lately been reduced by three-fifths. A number of estates both in the Khadir and Bangar have been injured by the prohibition of opium cultivation.

Against these considerations we have to put an increase in the cultivated area of 3½ per cent. in the Khadir, 12 per cent. in the Bangar, and nearly 31 per cent.* in the Nardak. The rise in the

* The comparison should have been between the cultivated area and the *jadid* of the two settlements. Apparently a good deal of the land recorded as *jadid* at the 1st settlement would have been treated at the revised settlement as cultivated, though part of the large *jadid* area of 1856 was probably really *kadim*. In the Khadir the area of cultivation and *jadid* had fallen off by 1 per cent., in the Bangar it had risen by 3, and in the Nardak by 5 per cent.

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General considerations determining the amount of the revised assessment.

Bangar and Nardak has been in the precarious dry cultivation, and in the latter circle our recorded cultivated area is, for reasons already explained, far above the average annual cultivation.

"The existing demand in the Indri Khadir is much heavier than that assessed by Mr. Ibbetson on the adjoining Karnal Khadir. Mr. Ibbetson's rates applied to my area would give a revenue of Rs. 75,785, while Rs. 89,447 are at present paid. His Nardak rates, applied to my excessive Nardak area, bring out a demand above Rs. 800 below that now taken. His dry Bangar rate is much higher then I would venture to propose. But the circumstances of the two circles are very different, as Mr. Ibbetson recognized by suggesting a dry rate of 14 annas in Indri as compared with 17 annas in Karnal."

Assessment of the Khadir.

325. A resume of the assessment of each circle is given below:—

The Khadir covers an area of 164 square miles, of which 96 are cultivated. One-sixth of the cultivated area is protected by wells, the number of which had increased by 4 per cent., since 1856. Cultivation and *jadid* had fallen off by 1 per cent., and population had declined. The soil is inferior. The canal *sailab* is the most fertile part of it but the remodelling of the Western Jamna Canal has reduced the area from 2,537 to 973 acres. For the same reason the small amount of canal irrigation has ceased entirely.

Thirty-seven per cent. of the area is owned by industrious Jats, Rors, Kambohs, and Malis; 31 per cent. by Rajputs, and 13 per cent. by Pathans, the chief Pathan proprietor being the Nawab of Kunjpura, who owns a great deal of land in his jagir villages. A little more than half the cultivation is in the hands of Jats, Rors, Kambohs, and Malis. The number of occupancy tenants had fallen off greatly since 1856.

Six per cent. of the total area has been sold since last settlement, more than half being to money lenders or men of capital like the late Nawab of Kunjpura. The average price per acre is below Rs. 20. Four per cent. of the land is mortgaged, and the mortgage debt amounts to more than the annual revenue demand.

The harvests are not really secure. In the severe drought of 1883-84 about a fourth of the area sown failed to yield a crop, and much damage is often done in the *kharif* by floods. The grain and cash rents are low. Owners generally get one-third of the produce. The demand was Rs. 89,319, rate 1-7-3. The half assets estimate amounted to Rs. 78,662. The settlement officer's proposed rates were :—

Assessment of the Khadir.

Detail.	Area in acres.	Rate.	Demand.
		Rs. A. P.	Rs.
Irrigated ...	12,448	2 4 0	28,008
Unirrigated ..	48,078	1 1 6	53,493
Total ...	60,526	1 5 3	81,501

Government sanctioned the rates proposed in this and the other circles. The revenue actually announced was Rs. 82,664, rate 1-5-7. The greater part of the decrease was in *jagir* estates, which had not been given the full benefit of previous revisions.

Assessment of the Bangar.

326. The area of the Bangar is 115 square miles, of which 64 are cultivated. Cultivation and *jadid* had increased by 2 per cent., while the number of wells had fallen off, and the population had declined. Two-thirds of the valuable canal *sailab* has disappeared with the closing of the old line of the Western Jamna Canal, but as a set-off against this, there is a considerable increase of canal irrigation. About 30 per cent. of the cultivated area is protected by wells. The Bangar has a much better soil than the Khadir, but the dry crops are more precarious. In the drought of 1883-84 only half of the recorded cultivated area yielded a crop, though the wells were strained to the utmost. More than half of the area is owned by Jats, Rors, Kambohs, and Malis, and about one-fourth by Rajputs.

13½ per cent. of the total area has been sold since the regular settlement, 40 per cent. of the sales being to money-lenders. The average price per acre is only Rs. 16. Mortgagees with possession hold 5½ per cent. of the total area, and the total mortgage debt is about 1¾ times the annual revenue demand of the circle.

The cash, *zabti*, and grain rents are all low. Where the tenant pays a share of the crop, he usually gives one-fourth, but one-third is often charged in the north of the circle. The half assets estimate amounted to Rs. 45,104. The revenue was Rs. 50,446, rate 1-3-8. Mr. Douie proposed to leave this practically unchanged. His rates were :—

Detail.	Area in acres.	Rate.	Demand.
		Rs. A. P.	Rs.
Irrigated	10,642	2 4 0	23,945
Unirrigated	30,382	0 14 0	26,584
Total ...	41,024	1 3 8	50,529

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An owner's rate calculated at half occupier's rate was introduced in four canal irrigated estates. The demand actually imposed was Rs. 50,600, to which Rs. 900 may be added as probable receipts from owner's rate.

Assessment of the Nardak.

327. The Nardak covers an area of 134 square miles, of which 46 are cultivated. Cultivation and *jadid* had increased by 5 per cent. since 1856, but there was a marked falling off in the number of wells. Only 9 per cent. of the cultivation is protected by wells.

If the census was accurately made in 1855 the population increased by 17 per cent. in the 13 years which elapsed between the first and second enumeration. There was a decrease of 5 per cent. between 1868 and 1881. The soil is stiffer than that of the Bangar. The rain-fall is scantier, and the cultivation still more precarious. Little more than one-fourth of the recorded cultivated area bore a crop in 1883-84.

Thirty-five per cent. of the area is owned by Rajputs, 11 per cent. by Jats, and 32 per cent. by Rors. The Rajputs and Jats are in difficulties, the Rors are extremely industrious and in fair circumstances.

Since settlement, 8¾ per cent. of the total area has been sold, and above half of the sales have been to money-lenders. The average price is only about Rs. 8 per acre. The amount of mortgage debt is small as compared with the other circles, the chief reason probably being that the land is less valuable as a security.

The produce is frightfully precarious, almost nothing in bad years, and very large when the rain-fall is abundant and seasonable. *Jowar*, coarse rice, and gram are the great staples.

Zabti and grain rents are low, and cash rents are very rare. When division of crop is the rule, one-fourth is almost always taken. The half assets estimate based on the average of the crop returns for three years was Rs. 16,931.

The demand of the year 1884-85 was Rs. 24,743, rate Re. 0-13-4. Mr. Douie proposed a revenue of Rs. 24,052, if the whole circle was put under fixed assessment. The details were :—

Detail.	Area in Acres.	Rate.	Demand.
	Rs.	Rs. A. P.	Rs.
Irrigated	3,129	2 0 0	6,258
Unirrigated	26,594	0 10 0	16,621
Grazing	37,542	0 0 6	1,173
Total ...	67,265	0 12 11	24,052

Assessment of the Nardak.

The revenue finally fixed was Rs. 23,589, rate Re. 0-12-8, but of this Rs. 10,905 represent the alternative fixed demand in estates put under the system of assessment described below :—

Mr. Douie proposed that 22 Rajput and Jat estates in the west and south of the circle, where the irrigated area is small, the cultivation peculiarly precarious, and the owners badly off should be put compulsorily under a mixed fluctuating and fixed system of assessment. Most of the other Nardak estates were to have the offer of a fluctuating assessment. If they declined it, as the settlement officer anticipated they would, they were further to be allowed during the currency of the new settlement, to throw up their leases and come under the fluctuating system. The Deputy Commissioner was to have authority, with the sanction of the Commissioner, to cancel the settlement of any estate, of which more than one year's demand was in balance, and to collect the revenue at fluctuating rates. The power of cancellation would only be exercised when there was no prospect of realizing the arrears within a reasonable time.

The system finally sanctioned was as follows :—A fixed assessment amounting to Rs. 2,247, was imposed on the recorded chahi area and on the pasture land. On the barani and small abi area the revenue is assessed harvest by harvest at the rate of one rupee per acre on all crops successfully cultivated. The success of the experiment depends entirely on the *patwaris'* work being closely and honestly supervised. So far Government has no reason to regret the adoption of this plan, as the following table proves :—

Year.	Receipts including Assigned Revenue.			Alternative fixed jama.	Difference.	
	Fixed.	Fluctuating.	Total.		Plus.	Minus.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1886-87	2,247	6,800	9,047	10,905	...	1,858
1887-88	2,247	14,599	16,846	10,905	5,941	...
1888-89	2,247	15,951	18,198	10,905	7,293	...
1889-90	2,247	9,220	11,467	10,905	562	...
Average ...	2,247	11,642	13,889	10,905	2,984	...

General result of reassessment of Indri

328. The revenue of the Indri *pargana* as a whole was lowered from Rs. 1,64,308 to Rs. 1,56,853, or including owner's rate Rs. 1,57,753. The decrease was in assigned revenue.

Effect of Karnal-Ambala Settlement on revenue of Karnal district.

329. The effect of the Karnal-Ambala Settlement on the former district was to raise its revenue by Rs. 35,663, to which must be added Rs. 14,000 on account of owner's rate. Roughly, therefore, an enhancement of half a lakh was taken, but it is not unlikely that with the imposition of owner's rate the canal irrigation may fall off somewhat, and that calculations based on the average ½ occupiers' rates for five years before settlement may not be fully realized (*see* para. 349).

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Panipat. Early British Revenue Administration.

PART II—THE PANIPAT DISTRICT.

Early Revenue History.

330. The state of the country when it first fell into our hands, has already been described in Chapter II. As soon as the establishment of British rule guaranteed the preservation of general order, the tract settled down as if by magic; the people who had taken shelter in the larger villages returned to their fields and hamlets; and those who had left the district altogether gradually came back again. But the habits which nearly a century of anarchy and confusion had engendered were not at once to be eradicated; and the oppressive manner in which we at first conducted our revenue administration greatly delayed the process. For the first few years revenue matters were practically in the hands of the people to whom we had assigned the various parts of the tract. But in 1817 we began to assess summarily the annual revenue to be paid by each village, not only in estates which had lapsed by the death of the assignees, but also, at the request of existing assignees, in many estates still held by them; and by 1824 this process was tolerably complete for the non-Mandal portion of the tract settled by Mr. Ibbetson.

The summary assessments were, throughout, incredibly oppressive. The assessment was based on the principle that Government was entitled by "the custom of the *pargana*" to half the *gross* produce of the cultivation; and a set of cash rates on the various crops which had sprung into existence under the Sikhs, and which had apparently been applied to a larger *bigah* than that used by us, were levied on areas taken from the *kanungo's* records (afterwards found to offer no sort of approximation to the real areas), or roughly measured at the expense of the village. The rates, as applied, were Rs. 16 per acre for sugar-cane; Rs. 9-3 for wheat, cotton, and rice; Rs. 6-14 for barley; and Rs. 3-7 for other crops. These rates, however, were only used in well-developed estates. Where pasturage bore a large proportion to cultivation, a rate of Rs. 3 per acre was imposed on the *whole culturable area*, "so as to induce the people to extend their cultivation." Besides this, a new tax on cattle was introduced at the rate of Rs. 2 per buffalo and Re. 1 per head of other cattle, the incidence of which was estimated at annas 10-6 per cultivated acre. The general incidence of the demands thus fixed averaged Rs. 5 to Rs. 5-8 per acre cultivated in 1828, when the first accurate survey was made. Mr. George Campbell reported that in many cases it would require *the whole gross produce* of the land and cattle to defray the Government demand. And in fact the assessments were purely nominal, as they were never collected—"in some instances not half of them—even in the first year of settlement." What could be got from the people was taken, and the remainder accumulated as balances. These were constantly added to the

demand, so that year by year it increased in arithmetical progression; and if a good season rendered possible a surplus over the actual demand of the year, it was at once seized on account of the balances of less favourable seasons.

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As early as 1822, before the settlement was even completed, there were balances of a lakh-and-a-half in *tahsil* Panipat alone; and the Board pointed out that "the inhabitants of some villages, nearly in mass, had abandoned their lands and homes and migrated to distant parts." In 1825 the Commissioner wrote:—

"At a very early period after the conclusion of last settlement, the error in the assessments was discovered; large balances occurred annually, till eventually *the whole of Panipat Khadir* was taken under direct management, and the impoverished people, without the means to pay half or even a third of their original assessment, were once more content to remain on their soil."

In 1836, four-and-a-half *lakhs* of balances, dating from as far back as 1814, were still outstanding. The system of settlement was no less oppressive than that of assessment. Large portions of villages were made over to neighbouring communities to hold and cultivate; and some of them so hold and cultivate them to this day. The village headmen, who were inordinately numerous, were spoken of and treated as the proprietors; the other members of the community as "*rayats*." The settlement was made with the headmen alone, and no record existed of rights, which had become a burden rather than a source of profit. There were no village accounts, and the collection of the revenue from individual cultivators was entirely unchecked so long as the amount was forthcoming. When a settlement was made, the headmen were imprisoned till they agreed to the terms offered (in one case for ten, in another for seven months); and, having accepted them, till they furnished security for payment. One village refused to agree to the assessment, no farmer could be found, and the Commissioner directed the Assistant to "confine the people and their cattle to their houses and the immediate site of the village, and sequestrate all land, orchards, &c. and enough of cattle and goods to cover the balances." Farms were only not common, because no farmers were forthcoming, and village after village was held in direct management. In 1824 the Assistant writes:—

"With whatever means a farmer may have commenced his agricultural career, he has generally contrived to visit the jail four or five times, and to attain an unenviable state of ruin in the course of three or four years."

The mode of collection was as vexatious and extortionate as the assessment was oppressive. The collections were made in February and September, long before the harvest; and the cultivator was thus "forced to part with his grain at a ruinous sacrifice." Guards were appointed to watch the crops in the

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interest of Government, but at the cost of the owner; and, directly the revenue was overdue, horse and foot were quartered in the village at its own expense. One hundred and thirty-six horsemen were retained for the collection of the revenue, while 22 sufficed for the police duties of the same tract. The Board of Revenue writes :—

"A pernicious practice prevails of overwhelming the villages with swarms of hired servants furnished with orders of demand for the instalments of the land revenue, without any regard to the means of the people, the state of the crops, the powers of the village, or the number of hired servants employed. In this way native officers provide for hungry dependants; and men of every bad description, idle, lazy loiterers, are scattered over the land, and find employment in forbearing to realize the monies they are sent to collect."

In 1822 the fees of these gentry were reported by the Collector to have amounted to more than a *lakh* of rupees, of which the revenue sheriff admitted having received Rs. 600 *per mensem*. In 1826, after two consecutive years of famine, a small village had all its crops seized, all its headmen thrown into prison, and one hundred and twenty head of cattle sold for arrears of an assessment, which had never been realized from it in *any one* year, which was two-and-three quarter times its *present* assessment and of which Mr. George Campbell had declared in 1824 that it would absorb nearly the whole gross produce of the village lands and cattle. In 1823, after a year of great distress, the headmen of 53 out of a tract of 209 villages were in prison for arrears, some for as long as 171 days, and in 1824 the jail force was increased on account of the number of revenue defaulters in custody. In 1826 the Collector reported as follows :—

"The *tahsildar* has urged the people to the extremity of their means, and they are consequently exhausted by a continuance of extraordinary struggles, grievously impoverished, and tremblingly apprehensive of a repetition of the grinding system. In many instances, and often in the largest villages, the whole village has fled in a body; for, after the usual process of imprisonment and sale of property, desertion remained the common ultimatum."

As the Collector reported "everything was done by the personal exertions of the *tahsildar*." Yet in the *tahsils* honesty would have been miraculous. In 1822 the *tahsildars* were paid only Rs. 20 a month. In 1835 one *tahsildar* was officially stated to have been "the principal cause of the ruin of many villages in Panipat Khadir." Till 1836 one *tahsildar* collecting 2½ *lakhs* annually, enjoyed a monthly salary of Rs. 50; another collected Rs. 68,000 on a pay of Rs. 30; a third, Rs. 1,37,000 on a salary of Rs. 20; none received more than Rs. 100. Between 1821 and 1825 five *tahsildars* were suspended for fraud, within four months of 1835, three were criminally convicted and dismissed, and a fourth committed to the Court of Circuit. A common practice was for the headmen to apply for a suspension of demand, and for the *tahsildar* to support the application.

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Sanction being obtained, the full amount was collected from the village, and the *tahsildars* and the headmen divided the difference. When the Collector visited the village and found that its condition did not justify a remission, he ordered the amount suspended to be realized, and the wretched proprietors had to pay twice over.

Under such circumstances the villagers became vagrants on the face of the earth. If neither of two villages could pay its revenue, the combined capacities of both might meet the demand on one of them. The revenue reports are full of such remarks as this :—"This village is entirely abandoned ; half the villagers have run away ; only five families left in this village." The protected Sikh States approached to within a mile of Karnal, and encircled the district on the north and west ; petty *jagirs* lay thick among the Government villages ; both offered a hearty welcome, land in plenty to cultivate, and lighter terms than our own to people driven from their homes by the burden of our rule. Desertion was so constant that the Collector in one case represented the uselessness of measuring the lands of a village eighteen months before assessing it, as "a year makes a great difference in the condition of a village ; so prone are the people to go from one village to another ;" and even the owners are described as "at times prepared to remove their ploughs and cattle to the waste lands of a neighbouring village."

The most stringent measures were adopted to check this evil. As late as 1837, if the people deserted their holdings, they were proclaimed, and if they did not return within one month, all their rights lapsed to Government, which forthwith bestowed them on another. Meanwhile the village which harboured the defaulters and allowed them to cultivate its lands was subject to fine and imprisonment. The village of Bhainswal, assessed at Rs. 1,148, was sold for a balance of Rs. 288, and bought by Colonel Skinner for Rs. 146. In one case efforts were made to hold a semi-independent chief liable for the arrears of defaulters who had fled to his protection. The correspondence of the day is full of "the contumacy of the people" and the decided measures necessary to "crush this sort of rebellion." The contumacy consisted in omitting to pay a demand which absorbed 60 per cent. of the whole yield of their herds and acres ; the rebellion, in leaving, through fear of a prison, the homestead which is dearer perhaps to the Indian villager than to any other man on God's earth.

Gradual amelioration.

331. It is needless to describe at any length the steps by which a more reasonable system was arrived at. The famine of 1824 first forced upon the authorities a revision of the assessments, which was made under Regulation VII of 1822. The demands still averaged Rs. 3-8 to Rs. 4-3 on cultivation in small weakly estates, and Rs. 2-6 to Rs. 3-3 on the whole culturable area in fully-peopled villages. But a great advance had been made. The revenue survey made in 1828, by giving firm

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ground to work upon, had rendered impossible those gross inequalities of assessments which had till then been unavoidable. The half-share principle, too, was abandoned, the demand being estimated to absorb about a fourth of the gross produce; and the revenue was collected after instead of before harvest. More attention was paid to the rights of individuals, field-to-field records were prepared showing the proprietory and cultivating tenures, each owner and each occupancy tenant received a slip stating the amount he was liable for, and *patwaris* of a sort were appointed; yet surplus land which a village could not cultivate was still largely settled with the neighbouring villages, and estates were farmed, even when the owners agreed to the assessment, if "poor and broken up," or, when flourishing, if the farmer would give 10 per cent. more than they offered. In fact, the system pursued throughout was that, having estimated the assessment as a guide, the Collector put up the estate to be bid for, allowing the owners a margin of 10 per cent. in their favour. Direct management was still frequently resorted to, many villages were still partly broken up or deserted by their inhabitants, the balances of twenty years still hung suspended over the people; but the general state of affairs was greatly improved, and in 1831 the Collector could report that "for the last four years the "revenue has been collected with more reasonable regularity."

After the famine of 1833 the assessments were again largely reduced. It was found that cultivation had "very generally decreased" since the survey of 1828. The rates were still exceedingly high. A rate of Rs. 2-6-5 per *culturable* acre was taken as a standard to be worked up to, with "a considerable sum added for cattle" in sparsely peopled villages; and the average on cultivation was Rs. 3-2 to Rs. 3-12, while the rate in some cases reached Rs. 6 or even Rs. 9 an acre. A still greater boon was the remission of the outstanding balances, which was effected in 1836-39. Between this time and the regular settlement of 1842 the assessments of individual villages were, in the Khadir at least, continuously being reduced; but no complete revision of settlement was attempted. In January 1839, for the first time since the conquest of the tract, no one was in prison on account of revenue balances; and imprisonment on this score may be said to have ceased as a common practice from that date.

The Bangar villages, being for the most part larger and more populous than those of the Khadir, had suffered somewhat less from raids in the days preceding our rule; but, on the other hand, the greater labour which a stiffer soil entailed upon the cultivator, and the uncertainty of the yield in a tract almost entirely dependent upon rain, made the return of the inhabitants to a village which they had once deserted less easy. The irrigation from the Royal Canal had, till the failing of the Mughal power threw the country into confusion, been very extensive; and then no doubt, as now, wells were but little used where canal

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water could be got; while the troubles which closed the canal were not favourable to the laying out of capital in sinking new wells. The tract was therefore more than ordinary dependent upon rainfall—a fact which kept down the cultivation to a far smaller proportion of the culturable area than in the Khadir. Thus while, on the one hand, demands based on cultivated or culturable areas pressed far more heavily than where abundant water was easily procurable, on the other hand, when security to life and property were once assured, the existence of an unlimited area of soil as fertile as any already under the plough, gave, with the rapid increase of cultivation, an elasticity under inordinate assessment which was wanting in the more fully developed riverain tract; and the gradual extension of canal irrigation so aided this increase, that from the time when the canal was restored by our Government, its history may almost be said to be the history of the Bangar. That history is sketched in Appendix A, and need not be repeated here.

After 1833 cultivation made enormous strides; and from that time till the regular settlement the prosperity of the Bangar was unbroken save by the epidemics of 1841 and 1843; for scanty rain meant nothing more disagreeable than high prices to villages protected by the canal. These epidemics, however, assumed, a special severity in the canal-watered tracts, and inaugurated for them a reign of malaria, the continuity of which has never since been broken.

Regular Settlement of 1842.

332. In 1837 a revision of settlement under Regulation IX of 1833 was ordered; and Mr. Alexander Fraser reported on the Panipat Bangar in 1839. His report is lost; but he slightly reduced the current demand. His proposals were rejected, not only as being inadequate to the capabilities of the tract, but still more as being unequal in their incidence, while his survey was found to be so incorrect that the whole work had to be done over again. Mr. Edmonstone then took charge of the settlement, and finally reported on it in 1842. The report has been reprinted in "Settlement Reports of the Dehli Territory, 1874." In every Khadir village but one the new demand was lower than the existing one, and in every village but two, lower than that first assessed upon it; the total reduction was about 15 per cent., and the incidence of the revenue per cultivated acre was Rs. 2-11. In the Bangar the current demand was raised by 6 per cent; but reductions were given in all the finest and largest villages. The incidence upon cultivation was Rs. 2-8-11. At the recommendation of the settlement officer all outstanding balances were remitted; and the people at length had a fair chance of prosperity.

The new assessment not only possessed the unprecedented merit of moderation, but it bestowed the still greater boon of a distribution of the burden bearing some intelligible relation to the means of bearing it. Hitherto, each assessment had been

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chiefly based upon the one before it, reduced in such degree as was thought absolutely necessary to keep the inhabitants from absconding. What rates were used had been applied to cultivated or culturable areas, without distinction of kinds of soil or of irrigated and unirrigated land. The new settlement was based upon rates carefully estimated for each of the three kinds of soil in both its irrigated and dry conditions. The extravagant different between the rates paid by Jats and those demanded from Gujars, which had imposed upon the former what Mr. Edmonstone characterises as a severity of taxation "of which, in the course of my experience, I have seldom found similar instances," was in a great measure removed. The long term of the settlement gave substance to the relief; and as Mr. Lawrence says, "the people were remarkably well pleased." The table on the next page gives the best figures obtainable for these old assessments:—

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Early Panipat Assessments.

Group of villages.	Panipat Khadir.								Panipat Bangar.								
	No. of villages.	First Settlement, 1817-21.	Second Settlement, 1826-33.	Third Settlement, 1835-37.	Demand in 1841.	Regular Settlement, 1842.	*Cultivated area in.* 1828.	*Cultivated area in.* 1842.	No. of villages.	First Settlement, 1817.	Second Settlement, 1821-23.	Third Settlement, 1826-30.	Fourth Settlement, 1834-36.	Demand in 1841.	Regular Settlement in 1842.	*Cultivated area in.* 1828.	*Cultivated area in.* 1842.
		Rs.	Rs.	Rs.	Rs.	Rs.				Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		
Group I	53	1,40,355	1,13,000	1,08,609	1,13,721	87,965	28,732	31,662	12	73,856	55,263	...	53,781	53,596	50,986	17,946	18,652
II	8	...	22,480	17,862	18,116	14,622	5,070	5,237	25	66,100	...	71,994	64,297	61,623	72,716	21,064	29,036
III	5	...	...	14,237	14,339	12,667	3,824	4,746	12	...	50,260	45,430	41,880	40,234	43,659	13,193	17,701
IV	...	...	...	...	...	...	...	...	11	...	28,545	27,795	27,275	27,321	30,308	8,192	13,346
V	...	...	...	...	...	...	...	...	4	...	...	15,780	15,550	15,550	15,983	5,363	6,676
Total,	66	...	...	1,40,708	1,46,176	1,15,254	37,626	41,645	64	...	...	...	2,02,783	1,98,324	2,13,652	65,758	85,411

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Revenue history since the Regular Settlement. The Khadir.

333. The history of the Khadir since the regular settlement has, on the whole, been satisfactorily monotonous. In 1843 an epidemic occurred, more terrible even than that of 1841. In 1851 a drought began which continued to 1852 and almost caused a famine; and the effects upon the crops were "infinitely disastrous." The famine of 1859-60 was in some degree compensated for by the bumper crops of 1861-62. In 1869 it was estimated that 20,000 cattle died in the Khadir and Bangar tracts. In 1875-77 there was a grass famine and the loss of cattle was serious. The absolutely useless Rer escape was dug right across the tract, impeding traffic, holding up the Bangar drainage in a great lake between the Khadir bank and the Grand Trunk Road, and allowing it to burst through the rotten banks, to the great injury of the cultivation below it and of the health of the city of Panipat. And much damage has been done by saline efflorescence and swamp in the north of the tract, where the canal and the Buddha Khera escape traverse the Khadir. The river has done much harm by cutting away good soil; and in some years, by passing in flood down its old abandoned channels. In his assessment of 1842 Mr. Edmonstone did not sufficiently allow for the inferior soil and still more inferior cultivation of the Rajputs and Saiyids who hold the more northern villages; and some of these villages utterly broke down, and considerable reductions had to be made in one instance to the extent of 33 per cent. of the whole demand. But on the whole the settlement, especially in the Panipat *tahsil*, worked well; and the tract prospered with the exception of its northern extremity.

Revenue history since the Regular Settlement. The Bangar.

334. In the Bangar the later, no less than the earlier history, depends almost wholly upon the canal and its action in the tract it traverses. The famine of 1859 is still remembered as the year in which all the canal villages cleared up their accounts with the village money-lenders; while in 1869, though the cattle suffered no less than elsewhere, yet the luxuriant crops and high prices went far to compensate the people for the loss. From 1871 to 1874 they suffered severely from heavy rains; and in the drought of 1875 the peculiarities of the season conspired against them to prevent them from taking advantage, as usual, of a scanty rainfall. But the vicissitudes of the seasons are quite overshadowed in the Bangar by the terrible evils which the canal system has caused by interference with the natural drainage of the country. These are full described in Appendix A.

Very soon after the regular settlement, the deterioration of the soil forced itself upon the attention of Government. In 1850 the people of some of the worst villages determined to abandon them and settle in Jindh unless relief were afforded. The Government, however, decided that the terms of settlement must be adhered to, and that the people had "no right to any consideration;" and all that was done was to take certain villages under direct management, the Sadr Board declining to deal with individual estates, and directing that a general report should be made

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when, and not till when, the revenue could no longer be realized. As pointed out by Mr. Sherer, "the Jats of this district will pay up as long as it is possible for them to raise money by any device, or at any immediate sacrifice; and when they find default inevitable, they consider the worst come, and leave their villages." Thus the break up was "sudden and complete." In 1856 most of the inhabitants of the worst villages deserted them and fled to Jindh, and the villages utterly broke down. The Government censured the "lamentable apathy" of the Collector; and Mr. Sherer, Collector of Aligarh, was specially deputed to survey and report on the tract.

His admirable report was submitted in 1857, and is printed as part of Selections No. XLII, (1864) from Government of India correspondence, P.W.D., pages 4-15. He showed that the water-level had been raised by the canal from some 60 feet to, in many places, two or three feet from the surface; that the fertility of the soil had been very generally diminished; and that the evil had not nearly reached its limits, but must necessarily continue to spread almost indefinitely. He wrote:—

"The possible resources of the *biswadars* of several estates are now exhausted. They have borrowed money at extravagant interest; they have become the mere farm slaves of some *bania* residing in their village; they have sold the trees on their estates; they have sold their daugters; they have sold their silver ornaments and brass utensils, and as many of their cattle as it was possible to spare; and no conceivable source of income is any longer available."

Between 1859 and 1861 the villages were taken up in detail; considerable initial reductions were given; and principles were laid down upon which annual relief was to be afforded where necessary, and revenue was to be reimposed where land had recovered. The whole revenue remitted on this account since 1856 has been about Rs. 4,58,350. Mr. Ibbetson thus describes the result of these operations:—

"I have no hesitation in saying that the relief so afforded has been wholly inadequate. The initial reductions, welcome as they were to the sufferers, do not seem to me to have accurately measured the degree of mischief. The demand on such land as had become absolutely and obviously unculturable was remitted; but little, if any, allowance was made for the deterioration of the remaining cultivation, for the impoverishment due to an ever-increasing burden borne for so many years, for the sickness of people and cattle, or for the almost total absence of pasture. No reduction was given where the decrease in cultivation was less than 10 per cent. on the whole cultivated area of the villages; and the result was that the individuals and sub-divisions of villages which had lost a much larger proportion of their land failed to obtain relief.

"As for the subsequent yearly action it is difficult to characterise it too strongly. The directions of Government would appear to have been entirely overlooked, and no intelligent review of the whole circumstances of a village ever attempted. No remissions have ever been made, so far as I can discover, on account of general

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deterioration, apart from decrease of cultivation. That it became merely a matter of arithmetic—so many acres rendered barren at so much an acre, find the reduction in assessment—was perhaps only to be expected in what had become a part of the yearly routine of the *tahsil*. And to crown all a mistaken reading of the orders confined the inquiry to such parts only of the area of each village as had been badly injured before 1860; so that subsequent spread of the evil was not taken into account at all."

The Mandal Tract.

335. The early history of the Mandal Tract which had been made over to the assignees in 1806, differs materially from that of the remainder of the tract as sketched above; for up to 1847 there was no fixed demand, the Mandals collecting their share of the produce in kind. The Mandal villages were pre-eminently notorious for turbulence and crime. They were almost wholly held by Rajputs, proud, quarrelsome, and fearless, looking upon agriculture as derogatory; they were cattle-graziers by profession, and cattle-lifters by hereditary taste. The few large villages in which they were concentrated were elevated far above the surrounding plain upon the accumulations of centuries, were surrounded by deep ditches and high walls with forts at the four corners, could only be entered by strong gateways with massive doors, were composed of lofty houses which turn their loopholed backs to the narrow winding streets, and were built almost entirely of brick. From these strongholds they drove forth their herds to pasture, while their servants tilled the scanty fields. Watchers on watch-towers and high trees throughout the *jangal* constantly scanned the plain beneath; and on the approach of danger, men and cattle sought the shelter of the village, or found yet greater safety in the pathless intricacies of the forest. Such were the people from whom the Mandals "holding, indeed, the title of *jagirdar*, yet possessing neither the name nor the authority of an executive officer," had to realize the revenue assigned to them by Government.

Under these circumstances the collection of rent from the villagers by the Mandals was a constant struggle between exaction and oppression on the one side, and audacity and cunning on the other. The Mandals themselves, deprived of the mental stimulus to which the warlike times just past had accustomed them, found that harassing and opposing the Government officers, even to lengths which would now-a-days infallibly end in a visit to jail, did not afford them sufficient excitement, and fell to quarrelling among themselves. The villagers fully entered into the spirit of this pursuit. Many of the largest villages were held jointly by the various Mandal families, and the boundaries of all were but loosely defined; and the people found that it was at once profitable and exciting to play off one Mandal against another. The chiefs themselves were for the most part ignorant and illiterate, and more inclined to pleasure than business; and the management of the estates was left in the hands of dishonest and unscrupulous stewards, whose interest in them was strictly confined to the immediate profit that

The Mandal Tract

could be made from them. Thus arose that bitter feeling of hostility between the villagers and the Mandals which exists in scarcely diminished intensity to the present day.*

The *pargana*, thus managed, had always been a thorn in the side of the authorities. At first the villagers had probably rather the best of the contest. But as order spread and authority was established, the position enjoyed by the Mandals, their greater knowledge of the law, and their longer purses, gave them a very decided advantage. As early as 1827 the Collector reported that the Mandals exercised very great oppression. In 1834 Mr. John Lawrence wrote that they were brutally unfair and extortionate; and the instances he gave in support of his assertion are such as it is almost incredible should have been permitted by the authorities. Eventually matters reached such a pitch that Government had to appoint a manager to act for the Mandals in some of the larger estates. Meanwhile the Bangar and Khadir had been steadily progressing and cultivation extending. Even in the Nardak improved administration had done much to reclaim the people from their lawless habits; and in 1847 only 12 of the 93 villages were uninhabited, and those were small ones. But the proportion of the area under cultivation was still exceedingly small; the "police officials openly connived with the notorious depredators of those parts;" and the Nardak was "the most troublesome and the only turbulent part of the district." Such was the condition of the tract when the Lieutenant-Governor marched through it in the end of 1844. The impression made upon him by what he then saw, and the detailed instructions which he issued, will be found at length in Mr. Ibbetson's Assessment Reports. The following extracts will show the considerations which led him to direct that a regular settlement of the Mandal villages should be effected:—

"In marching from Karnal to Kaithal, the Lieutenant-Governor was much struck with the poorness and bad management of a great part of this estate. * * * The estate is large and valuable, whilst the permanent quit-rent with which it is charged is trifling. The Mandals are understood to have been already great gainers by the exchange; whilst by good management the value may be very greatly improved. The villages are British territory, subject to our laws in all branches of the administration. It is very doubtful if any circumstances justify the Government in leaving subordinate proprietors at the mercy of an assignee of the Government revenue, without interfering to define and record the rights of all parties. Circumstances in this case, however, particularly bind the Government to interfere. The lands were assigned by this Government, who are therefore bound to come forward and provide that no wrong is inflicted by the act of assignment, which resulted from the policy of the day. There are no old-established and doubtful claims of proprietory right to investigate. The village communities remain

* The villagers to this day commonly speak of the Mandal who receives their revenue as their "*muddai*"—or "prosecutor."

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in all their integrity the unquestioned owners of the soil, and often able to resist by physical strength even the just demand of their superiors. If by our police we deprive them of the benefit of their strength, we are bound to substitute for their innate means of resistance the protection of legal arbitration. The Mandals did not very strongly object to the measure. They were apprehensive that it might curtail their influence and consideration, though they perceived that it might augment their income. The measure ought not to rest on their approval or rejection, and the Lieutenant-Governor is fully convinced that justice and sound policy alike demand its execution."

Mandal Settlement of 1847.

336. Mr Gubbins at once commenced the settlement which was sanctioned in 1847. The operations were conducted under circumstances of the greatest difficulty. The conquest of the Panjab was then in progress, and at the frontier station of Karnal the demands upon the time of the civil officer were heavy and inexorable. The Mandals prosecuted their conflicting interests with "money, argument, and occasionally armed retainers;" the people, unaware of its importance, were profoundly indifferent to the correctness of the record. The Settlement Officer did his best to patch up his material by arbitrarily increasing or diminishing all recorded areas in different villages according as he thought the survey figures too small or too large; but he confessed that the record was eminently unsatisfactory; and therefore proposed that sanction should be accorded to the settlement for a term of five years only. But the errors of survey and record were immaterial, compared with the capital error which vitiated his assessments. His duty was to assess the dues of the Mandals, which were measured by "the legal and regulated right of Government to the land revenue." Hitherto the Mandals had collected rent, not revenue; and almost always in kind. Theoretically, the new demand should have been, under the rule of the day, two-thirds of the average collections thus made. Instead of this he assessed the Nardak at more than the average past collections as stated by the Mandals themselves, though their statements were known to be grossly exaggerated, and though a fixed money demand was being substituted for a self-adjusting levy of a share of produce as it varied with the varying seasons.

The settlement thus made was received with the greatest discontent. The people refused to accept it; and the Mandals, while petitioning against it as unduly low, encouraged the people in their refusal by promising them easier terms. The feeling of the people was especially embittered by the transfer to the Mandals in absolute property, under the directions of Government, of all villages which had been abandoned when the Mandals took over the tract, and to the resettling of which they had in any way contributed, either by loans, expenditure of capital, or settling cultivators. Ten inhabited and 12 uninhabited villages, comprising an area of 20,850 acres, were thus made over to the Mandals; they still hold them as owners; and this more than anything else,

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has conduced to envenom the minds of the people against the *jagirdars.* The settlement was sanctioned, at the request of the settlement officer, for five years only; and the people eventually accepted the terms offered. Mr. Gubbins' report is printed as No. XXXI, Part VI, Vol. II of Selections from public correspondence, North-Western Provinces, Agra, 1852.

Revision of 1852.

337. Within these five years balances of Rs. 65,500 had accrued on an assessment of Rs. 30,763 in the 28 leading villages of the Nardak. Some balances were also owing in the Khadir. The Collector reported that the most of the people would gladly return to direct management, and would certainly refuse to renew their engagements; that it would be impossible to find farmers; and that the Mandals had taken out decrees for their balances, and would probably put up the villages to sale. The Lieutenant-Governor discussed the matter at Dehli, and Mr. Ross was directed to revise the assessment. He was directed to "arbitrate between the Mandals and the people as he would between Government and its revenue-payers." He was to reduce the assessment, if too heavy; and to endeavour to induce the Mandals to relinquish so much of the balances as might appear to be due to over-assessment. As they held decrees, nothing more than persuasion could be used; but if they declined to abandon unjust claims, the estates were to be assessed at exceedingly low rates, so as to render the liquidation of balances possible. Mr. Ross failed to induce the Mandals to relinquish any part of their balances: but with great difficulty he brought them to accept payment by instalments. He reported that "he had seen many parts of the country, but nowhere had "he beheld so much poverty and depression as in many of the "large villages of the Nardak; that house after house was "deserted and in ruins; that there was an absence of everything "indicative of comfort; and that the number of cattle that had "died during the season would still further affect the prosperity of "the villages." He also pointed out that, independently of the impoverished state of the estates (which alone would make it impossible), the absence of the majority of the villagers must render any attempt to collect even a portion of the balances abortive; for famine had driven the greater part of the Nardak population to other and more fertile districts, there to gain a livelihood as they best could, and graze their starving herds. Yet he wholly failed to realize the inordinate nature of the assessments he was revising; he was of opinion that their failure was owing to a quite exceptional run of bad seasons; and while he proposed a quite nominal reduction of 6 per cent. in the Nardak and 2 per cent. on the whole tract, he directed the balances to be liquidated by yearly instalments of half the assessment, thus really enhancing the demand, which the people had been wholly unable to pay, by 46 per cent.

The people of most of the Nardak and of some of the Bangar villages, where the canal was beginning to do harm, refused the terms; and of a total demand of Rs. 1,00,901, only Rs. 56,239,

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was engaged for. No farmers were forthcoming, and the Mandals took the recusant villages into direct management. They also sued out execution of their decrees for balances; but the Sadr Board flatly refused to allow any estate to be put up for sale till Government orders on the revised settlement should be received, and thus saved the Nardak from wholesale confiscation. The orders of Government were delayed, and in 1855 it was found that direct management had not even realized the assessment, much less reduced the balances; while in the Nardak villages which had engaged for the new assessments new balances had steadily accrued year by year.

The Lieutenant-Governor once more discussed the matter at Dehli. He decided with regret that it was not within the competence of Government to take the *pargana* entirely under its own management, paying the revenue collected to the Mandals. He remarked that there was "good reason to apprehend that frequent "failure of crops was much more the rule prevailing over the tract "than Mr. Ross had been led to believe in 1852;" and he refused sanction to the assessments of 1852, and directed Mr. Ross to make another revision.

Revision of 1856.

338. Mr. Ross reported that most of the Nardak, and especially the recusant villages, had sensibly deteriorated even from their "wretchedly depressedly and impoverished condition "in 1852; that one-and-a-half out of the three years that had "elapsed since the *pargana* had been last assessed had been, if "not seasons of complete drought, at least seasons of partial "famine; and that it was only surprising that the estates had "not sunk altogether." The canal villages he found to have been impoverished by the "steady and rapid increase of *reh*, all "being more or less affected, and in some instances incalculable "damage having been done, while every year sees its increasing." He also animadverted upon the Mandal management:—"No consideration is ever shown, no concession granted with a good grace, and in seasons of scarcity there is no disposition to be moderate. On the contrary, the sole aim is to squeeze as much out of the estates as possible;" and he instanced a village in which no crops had been sown owing to drought, and where the Mandal waited till a lapse of nine months had removed all proof of this fact, and then applied for the realization of a money-rate, on the ground that the people had prevented his servants from measuring and appraising the crops as they stood. He took the rates Captain Larkins was then using in his revision of the Kaithal settlement, increased them somewhat, and adopted them as a guide. But his assessment and note-books show that he made but little use of them, trusting rather to his knowledge of the tract, and to the past history of each village. He reduced the assessment of the whole *pargana* by 20 per cent. In the canal tract he relieved 10 out of the 15 villages, the total reductions being 16 per cent. In the Khadir a reduction was given in six villages, amounting to 12 per cent. on the whole. In the Nardak the demands of all but five villages

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were reduced, in many cases to less than half the demand of 1847; the assessment being Rs. 38,190 against Rs. 50,759 in 1852, and Rs. 53,848 in 1847. As nothing more is heard of the old balances, it is probable that the collections between 1852 and 1856 were credited against them, and they were thus got rid of. The figures on the next page show the result of the two reductions of assessment.

The mutiny and the transfer of the district to the Panjab caused some delay; but in 1860 the Panjab Government, while regretting that the pasture lands had been assessed, and remarking that the assessments were still considerably higher than those of the Kaithal district, sanctioned the settlement as having already been in operation for some years. The Board of Revenue, agreeing with the Collector, had recommended that the collection of the revenue should be altogether taken away from the Mandals; but the chief of the family had done good service in the mutiny; and as the proposed measure would have been looked upon by him as an indignity, it was not carried out, and Government—

"Contented itself with confirming the assessments, on the distinct understanding that the rights of the Mandals are limited to an assignment of the revenue, and do not extend to the management of the land; and that, in the event of calamities of season, deterioration by saline efflorescence, or other reasonable cause, the *zamindars* shall received the same equitable indulgences as are granted to *khalsa* villages."

The settlement so confirmed is that which Mr. Ibbetson revised.

Revenue history since the Regular Settlement.

399. Since 1856 the Nardak villages have, except in famine years, paid the demands then imposed without any very large balances or remissions, so far as is known. But of course, we know nothing about the realization of the Mandal revenue, except when matters reach such a point that Government is compelled to interfere: and the Mandals themselves admit that the revenue has been realized very irregularly and with the greatest difficulty. The only events worthy of notice have been the terrible famines of 1860 and 1869, and the drought of 1877, already fully described. During the famine of 1869, the right of Government to suspend and remit revenue in the villages granted to the Mandals, which had been distinctly postulated by the Financial Commissioner and Lieutenant-Governor when the settlement was sanctioned in 1860, was discussed and finally affirmed.

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Early Karnal Assessments.

Tract assessed.		No. of villages.	Revenue-paying areas. First Settlement, 1842-47. Cultivation.	Revenue-paying areas. First Settlement, 1842-47. Pasture.	Revenue-paying areas. Present State, 1876. Cultivation.	Revenue-paying areas. Present State, 1876. Pasture.	Amount of assessment. First Settlement, 1842-47.	Amount of assessment. Reduced in 1852.	Amount of assessment. Reduced in 1856.	Amount of assessment. Existing in 1876.
Nardak.	Mandal estates	67	34,481	97,989	38,177	82,289	53,848	50,759	38,190	37,917
	Other villages	7	2,249	8,606	2,977	10,709	4,700	...	...	4,246
	Total ...	74	36,730	106,595	41,154	92,998	58,548	...	...	42,163
Khadir.	Mandal estates	11½	7,618	5,975	7,698	3,820	15,050	15,014	13,297	12,770
	Other villages	35½	20,753	11,577	21,785	12,653	48,125	...	...	44,264
	Total ...	47	28,371	17,552	29,483	16,473	63,175	...	...	57,034
Bangar.	Mandal estates	15	16,406	11,385	15,402	6,692	36,068	35,128	29,470	293,71
	Other villages	17	14,426	10,087	17,442	9,101	32,588	...	...	30,602
	Total ...	32	30,832	21,472	32,844	15,793	68,656	...	...	59,973
Total.	Mandal estates	93½	58,505	115,349	61,277	92,801	104,966	100,901	80,957	80,058
	Other villages	59½	37,428	30,370	42,204	32,463	85,413	...	...	79,112
	Total ...	153	9,933	145,719	103,481	125,264	190,379	...	...	159,170

The Settlement of 1872-80.

Basis of the assessment.

340. The instructions by which the Settlement Officer was to be guided in the assessment, were conveyed in Government Punjab No. 1615, dated 3rd November 1873. They laid down that the demand was "not to exceed the estimated value of half "the net produce of an estate; or, in other words, half the share "of the produce of an estate ordinarily receivable by the landlord, "either in money or kind." They directed him to pay special attention to produce estimates; and they further ruled that he was to "take into consideration all circumstances directly or indirectly "bearing upon the assessment, such as rent-rates where money "rates exist, the habits and character of the people, the proximity "of marts for the disposal of produce, the incidence of past assess-"ments, the existence of profits from grazing, and the like. These "and other considerations must be allowed their weight." (1) Finally, they laid down that, after aanction had been received to the rates and gross assessment proposed for each *tahsil*, "full consideration must be given to the special circumstances of each estate in fixing the assessment to be ultimately adoped." The most satisfactory basis of the settlement would have been rent-rates, had such been forthcoming. But true rent at competition rates is almost unknown in the district. Accordingly, as the share of the produce ordinarily receivable in kind by the landlord is fairly well established, estimates of the gross produce of the land assumed a peculiar importance.

Mr. Ibbetson divided the tract into the five circles of Nardak, Karnal and Panipat Khadir, and Karnal and Panipat Bangar, for assessment purposes. To utilise the produce estimates for purposes of assessment, it was necessary to fix the share of the produce ordinarily receivable by the landlord, and further to fix prices which, applied to that share of the gross produce, would give the estimated rental. Rents have already been discussed in Chapter III (Section E). The proportions finally adopted were :—

Nardak—	
Irrigated or manured ...	one-third.
Other land ...	one-fourth.
Other Circles—	
Irrigated ...	one-third.
Dry ...	two-fifths.

Results of the assessment.

341. The tables on the next two pages give the results of Mr. Ibbetson's assessment. The rates used in previous settlements are given in full detail in his report. Those sanctioned for his settlement were as shown in the margin per acre.

SOIL.	*Panipat*		*Karnal.*		
	Bangar.	Khadir.	Nardak.	Bangar.	Khadir.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Irrigated ..	2 12 0	2 14 0	1 14 0	2 4 0	2 2 0
Dry dakar	1 6 0	1 8 0	1 12 0	1 1 0	1 4 0
" rausli			1 0 0		
" bhur ..	0 12 0	0 8 0	..	..	1 10 0
Moist rausli ..	..	..	..	..	
Pasture ..	..	..	0 0 8	..	..
Canal land in its dry aspect ..	1 13 0	..	..	1 5 0	..

(1). The same instructions were given in the case of the Karnal-Ambala Settlement.

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Results of the assessment.

Statemeut showing Assesments and Rates of Incidence in Rupees.

	Assessment in rupees.						Rates of incidence per acre.					
	Pargana Karnal.			*Pargana Panipat.*			*Pargana Karnal.*				*Pargana Panipat.*	
	Nardak.	Khadir.	Bangar.	Khadir.	Bangar.	Total.	Nardak. Cultivation.	Nardak. Cultivation.	Khadir. Cultivation.	Bangar. Cultivation.	Khadir. Cultivation.	Bangar. Cultivation.
Assessment of 1842-47, with cesses...	63,233	68,229	74,150	1,61,234	2,67,777	6,34,623	1 11 7	0 7 1	2 6 6	2 6 6	2 14 2	2 10 4
" " 1856, with cesses ...	47,233	66,950	67,643	...	...	6,10,837	1 4 7	0 5 3	2 5 9	2 3 1	...	...
Current demand 1857, with cesses ...	49,160	65,875	69,269	1,69,527	2,70,015	6,23,846	1 4 3	0 5 10	2 4 7	2 2 10	2 13 2	2 11 11
New assessment, with cesses ...	50,876	62,937	80,960	1,80,401	2,84,285	6,49,459	1 0 10	0 4 11	2 2 11	2 8 5	3 0 0	2 14 3
Assessment of 1842-47	58,548	63,175	68,656	2,49,290	2,47,939	5,87,608	1 8 4	0 7 0	2 3 7	2 3 7	2 12 5	2 7 3
" " 1856	42,890	61,422	62,058	...	...	5.63,599	1 1 9	0 4 0	2 0 2	...	...	...
Current demand of 1856	42,163	57,034	59,973	1,46,777	2.33,779	5,39,726	1 1 5	0 5 0	1 15 8	1 14 2	2 6 9	2 5 8
New assessment	34,040	52,086	67,420	1,50,230	2,36,740	5,40,516	0 14 0	0 4 1	1 12 11	2 1 8	2 8 0	2 6 6
Revenue rates demand { Sanctioned	33,497	51,835	63,114	1,51,112	2,41,569	5,41,127	0 13 10	0 4 1	1 12 10	1 15 9	2 7 10	2 7 3
Revenue rates demand { Proposed ...				1,53,740	2,63,238	5,65,424					2 8 6	2 10 2
Produce estimate	31,598	50,712	65,097	1,51,297	2,66,973	5,65,677	0 13 1	0 3 10	1 12 2	2 0 9	2 7 10	2 11 0
Rent "	31,509	52,240	65,500	1,46,782	2,64,375	5,60,406	0 13 0	0 3 10	1 13 0	2 1 0	2 6 8	2 10 7
Percentages.												
New on last assessment. { With cesses ...	86·5	94·0	119·7	111·9	106·2	106·3						
New on last assessment. { Without cesses ...	79·4	84·8	108·6	100·7	95·5	25·9						
New on current demand. { With cesses ...	83 2	95·6	116·9	106·4	105·3	104·1						
New on current demand. { Without cesses ...	80·7	91 3	112·4	102·4	101·4	100·2						
Assesments on revenue rates demand	101·6	100·5	106·8	99·4	98·1	99·9						

NOTE.—The new assessment range includes estimated owner's rates as follows:—

	Rs.
Nardak	895
Karnal Khadir	1,825
Do. Bangar	26,880
Panipat Khadir	900
Do. Bangar	73,330
Total ...	1,03,880

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Results of the assessment.

Statement showing General Results of the Assessment in Rupees.

	Mandal Tract.			Other Villages.		Whole Tract.		
	Revenue assigned to Mandals.	Revenue assigned to others.	Revenue not assigned.	Revenue assigned.	Revenue not assigned.	Revenue assigned.	Revenue not assigned.	Total Revenue.
Assessed revenue	57,042 8 0	3,527 8 0	100 0 0	33,104 8 0	3,42,746 8 0	93,674 8 0	3,42,846 0 0	4,36,521 0 0
Deduct fees of *zaildars* and chief head-men	899 8 0	33 0 0	1 0 0	449 0 0	6,206 8 0	1,381 8 0	6,207 2 0	7,589 0 0
Deduct quit-rent	10,000 0 0	126 0 0	...	3,091 7 0	...	13,217 7 0	...	13,217 7 0
Balance ...	46,143 0 0	3,368 8 0	99 0 0	29,564 1 0	3,36,540 0 0	79,075 9 0	3,36,639 0 0	4,15,714 9 0
Add quit-rent	126 0 0	...	10,000 0 0	...	3,091 7 0	126 0 0	13,091 7 0	13,217 7 0
Net fixed revenue	46,269 0 0	3,368 8 0	10,099 0 0	29,564 1 0	3,39,631 7 0	79,201 9 0	3,49,730 7 0	4,28,933 0 0
Add estimated owners' rates* ...	...	...	14,595 0 0	...	89,235 0 0	...	1,03,830 0 0	1,03,830 0 0
Total income ...	46,269 0 0	3,368 8 0	24,694 0 0	29,564 1 0	4,28,866 7 0	79,201 9 0	4,53,560 7 0	5,32,762 0 0

* The owners' rates of the Mandal and certain other revenue-free villages have since been assigned to the revenue grantees.

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Resume of the assessment. The Nardak.

The following pages, taken from the report, from a compendious description of the assessment :—

342. We have in the Nardak a high arid tract of scanty rainfall, held by a population which largely supplements agriculture by cattle farming, and having only 27 per cent. of its area cultivated. Of the cultivation, 9 per cent. is irrigated by wells, while 3 per cent. is protected by, and 1½ per cent. ordinarily watered from, the canal. Only 5 per cent. is manured. Nine per cent. of the cultivation is held by alien landlords, 60 per cent. by Rajputs and Gujars, and only 31 per cent. by Jats and Rors. These last are chiefly found in the fringing villages of the tract, which, though the soil is distinctly inferior, have water at a moderate depth. These villages constitute only a sixth of the total area, but comprise two-sevenths of the cultivation, of which 32 per cent. is irrigated, including all the canal land. The remainder of the tract constituting the Nardak proper, and principally held by Rajputs, has only 5 per cent. of its cultivation irrigated, water being at a depth of 90 to 140 feet ; the crops are therefore entirely dependent upon an uncertain rainfall averaging less than 18 inches, while the great stiffness of the soil enhances the eminently precarious nature of the yield. Thus Mr. Ibbetson stated that out of 40 crops, 16 had failed almost completely. Ninety-two per cent. of the whole cultivated area is under inferior sorts of grain, the yield of which, on the average of a number of years, is only sufficient for the subsistence of not quite two-thirds of the whole village population. At least 15 per cent. of the cultivation is in the hands of tenants paying no rent to the owners, while strangers own or hold in mortgage 9 per cent. more. There is an ample supply of cultivators ; and agricultural appliances are, considering the inferior nature of the cultivation, fairly equal, over the whole tract, to the area under the plough ; though the fringing villages have been much crippled in this respect by the cattle epidemic of 1869. The existing cultivation, if not supplemented by the produce af cattle, would be quite unequal to the needs of the population ; but, though all the low-lying ground is already cultivated, there is ample room for expansion in the higher and drier soils.

The circle was held till 1849 on grain collections : an assessment was then made which was never realised ; and the reductions effected in 1852 being insufficient, the greater part of it was held in direct management, or rather mismanagement, till 1856, when a reduction of more than 30 per cent. was made in the demand. Since then the revenue has been, except in years of actual famine, collected, though with great difficulty and irregularity. Early figures afford no trustworthy basis for a comparison ; but it is probable that, setting aside the extraordinary seasons of 1873–75, cultivation has not materially increased since 1847 ; while the wells have decreased in number by 28 per cent. on the whole, and 42 per cent. in the Nardak proper. Meanwhile the population is multiplying rapidly. The cost of production has increased largely ; but while the average yield has probably not sensibly altered,

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prices have risen by a quarter. The people are still, as Mr. Lawrence described them to be in 1843, "the poorest in the district;" their herds, which form their mainstay in bad seasons, were terribly diminished by the cattle epidemic of 1869, and were suffering greatly when Mr. Ibbetson assessed the tract; most of the estates are impoverished; there is no hope of consideration being ever shown them by the Mandals, and therefore no hope of any consideration except when distress rises to a pitch which justifies the district officials in interfering. It was very necessary to give the Nardak villages very general relief in the shape of reduction of assessment.

In this circle a reduction of 19·3 per cent. was given in the current demand, which additional cesses, amounting to 12 per cent. on the revenue imposed since last settlement, reduced to 16·8 per cent. on the whole burden as it stood in 1876, and to 13·5 on that of 1856. The demand so imposed forms 101·6 per cent. of the assessment at sanctioned rates, and 108·1 and 107·7 per cent. of those given by rent and produce estimates respectively. The relief afforded by redistribution of the demand over the individual villages, was perhaps even greater than that afforded by the general reduction, and was even more urgently needed.

Resume of the assessment. Panipat Khadir.

343. In Panipat Khadir we have a tract of which 59 per cent. is under cultivation. The soil is for the most part fertile, especially when carefully tilled, but a considerable portion is very sandy and poor, and 2½ per cent. is exposed to flooding by the river. Its lightness and the nearness of the water reduce the labour of agriculture; and 74 per cent. of the cultivation is protected from drought by canals and permanent wells, while 11 per cent. is partially protected by temporary wells; the crops are, however, exceedingly liable to damage by excess of moisture: 32 per cent. of the cultivation is manured. The mass of the cultivation is carried on by the proprietors themselves, but at least 11 per cent. of it is in the hands of very small tenants who pay no rent to the owners; and strangers own or hold in mortgage 4½ per cent. of it. Thirty-eight per cent. of the cultivated area is in the hands of the best, and 33 per cent. in those of the worst cultivators in India; while the remainder is with castes but little better than the Gujars. Agricultural appliances are fairly equal, and cultivators more than equal, to the area under the plough; but the cattle are not sufficient to enable full use to be made of the existing means of irrigation. The population, especially in Jat villages, is disproportionately large, even to the verge of distress, and the subdivision of holdings is excessive.

After cruel over-assessment which impoverished the Jats and drove away the others, gradual but insufficient relief was followed at the end of 25 years of suffering by an assessment which, though light only by comparison, was fairly distributed, and must be said to have worked distinctly well. During 35 years of this assessment the people have been free from distress, except such as has been caused by famine; the cultivated area has increased by 9 per cent.,

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Resume of the assessment. Panipat Khadir.

and has in a large number of villages, and notably in the best ones, almost reached the limit of profitable expansion; while the population is rapidly increasing. The cost of production has increased largely, and the average yield must have somewhat decreased; but prices have risen by a quarter, and agricultural appliances have fully kept pace with the cultivation. The people of the tract may be said, in general, to be prosperous, though not remarkably so; but many of the Gujar villages, and some Jat ones, in which sufficient reduction was not given in 1842, required relief, though not in any large degree. Some of the Gujar and many of the Jat villages naturally had their demand enhanced, though, on the whole, increase in the assessment was smaller than that in the cultivation; and in some villages, where the advance made was very great, it was thought inadvisable to realise the full demand at once. In this circle the demand was enhanced by 2·4 per cent., while additional cesses impossed raised the total increase to 6·4 per cent. on the burden of 1876, and to 11·9 per cent. on that of last settlement. The new assessment is 99·4 per cent. of that given by Mr. Ibbetson's sanctioned rates, and 2·3 per cent. in excess of rent, and 0·7 per cent. below his produce estimates. At the same time the incidence of the burden was redistributed so as to afford much needed relief to many of the estates which had, from various reasons, become impoverished.

Resume of the assessment. Karnal Khadir.

344. This tract is, in many respects, the exact antithesis of the Nardak. The soil in general is not infertile, and well repays careful cultivation; though, without it, its yield is small, and a considerable portion of it is always very sandy and poor. Eleven per cent. of it is liable to most destructive inundation by the river, while the whole northern corner has been seriously damaged by *reh* and swamp from the canal and its escape—evils which are slowly increasing. The lightness of the soil and the nearness of water reduce the labour of agriculture to a minimum. Of the cultivation 64 per cent. is irrigated from permanent wells, which, however, can only water some 72 per cent. of this area in any one year; temporary wells partly protect 4 per cent. more, and 22 per cont. of the whole is manured. Tenants hold, at least, 23 per cent. of the cultivation, most of whom pay only a nominal rent to the owners; while strangers own or hold in mortgage 9 per cent. more. Only 18 per cent. of the cultivated area is in the hands of good cultivators, while the remainder is held by quite the worst in India, 6 per cent. of the owners abstaining from manual labour of every sort. Appliances and cultivators alike are barely equal to the needs of the cultivation, being abundant in the Jat and Ror villages, but in marked defect in the others; the appliances for irrigation also are specially insufficient. The population, especially in Jat villages, is disproportionately large. The sub-division of holdings caused by over-population is enhanced by the adhesion to the Muhammadan Law of inheritance of a considerable Saiyid community.

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Resume of the assessment. Karnal Khadir.

About a quarter of the tract was held in direct management by the Mandals till the settlement of 1847, the remainder suffered for 25 years cruel over-assessment, and the relief afforded in 1842 was found to be insufficient. Throughout the whole tract the demand had had to be reduced considerably since settlement. Meanwhile, though the cultivation had increased by some 4 per cent., the masonry wells had slightly diminished in number, while 6 per cent. of the irrigation, the most important element in Khadir cultivation, had deteriorated from permanent to temporary. The cost of production had increased largely, and the average yield must have somewhat decreased, but prices had risen by a quarter since settlement. The Jat and Ror villages were on the whole prosperous, except where the pressure of population was unusually great; but some of the Taga, many of the Rajput, and all the Saiyid villages, were greatly impoverished, and sadly needed relief. In this circle a reduction of 8·7 per cent. on the current demand was given, which the imposition of new cesses reduced to a relief of Rs. 4-4 per cent. on the total burden. The demand so increased formed 100·5 per cent. of that given by the sanctioned rates, and 99·7 and 102·8 per cent. respectively of the rent and produce estimates. A re-distribution of the demand was urgently called for, and, while in many prosperous villages the assessment was raised, much-needed relief was granted to a still greater number.

Resume of assessment. Panipat Bangar.

345. In Panipat Bangar we have a tract of which 52½ per cent. was cultivated, 1½ per cent. had been lately thrown out of cultivation, because it is either absolutely unculturable or only culturable in an unusually dry year, 29 per cent. was positively barren, and the remaining 17 per cent., which was shown as culturable, included a good deal of land which is really not worth the labour of tillage. The soil is naturally most fertile, and, when not exhausted by over-cropping and not deteriorated by external causes, yields crops of the most splendid luxuriance. But the faulty alignment of the canal and its distributaries and the excessive irrigation practised had water-logged the country, and called into existence two terrible evils—saline efflorescence and swamp or soakage—which had not only rendered absolutely barren thousands of cultivated acres, but had seriously diminished the fertility of much of the remaining cultivation; while a system of ruinous over-cropping, partly due to the decrease in cultivation, and partly owing to the system of assessment adopted, had enhanced the deterioration. Seventy-seven per cent. was protected from drought by an irrigation which, though often uncertain in supply, yet could never altogether fail, and which was obtained with little or no labour and at a very moderate cost; twenty-one per cent. was manured. More than seven per cent.* of the cultivation was in the hands of the Skinners, and was cultivated by tenants at a rack rent, usually of the most cruel nature. Of the remainder the greater part was cultivated by the owners themselves, but 6 per cent. at the very least was held by tenants in excessively small holdings, while strangers owned or held

* Excluding villages the farm of which has now lapsed.

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Resume of the assessment. Panipat Bangar.

in mortgage $3\frac{1}{2}$ per cent. Fifty-four per cent. of the cultivation was owned by Jats, and 18 per cent. by Rors, who are almost as good: the Skinners owned 7 per cent., and the remaining 21 per cent. was held by Gujars, Ranghars, and other equally bad cultivators. The cultivators were on the whole equal to the area under the plough; but the agricultural appliances were not only insufficient, but were badly distributed, being most scanty where most needed. The population in the injured villages was excessive, and was being rapidly decreased by emigration, while the cultivated area was already largely supplemented by land held in a neighbouring native state.

The early assessments were exorbitant, but the spread of canal irrigation and increase of cultivation were attended by a gradual reduction of the demand; and in 1842, when canal irrigation had nearly reached its maximum, and the tract had, as Mr. Sherer says, "obtained "its highest point of prosperity," a very moderate assessment seemed to secure it from the possibility of distress. But from 1850 up till settlement the history of a very large portion of the tract had been one of deadly sickness, decreasing cultivation, and diminishing fertility; and the relief afforded had been tardy and insufficient. While on the whole the cultivation had remained stationary, an increase in some villages of 16 per cent., had been counterbalanced by a loss of as much as 25 per cent. in many others, the population had throughout advanced upon the cultivated area, and in a large portion expansion was impossible, and further diminution of cultivation almost a matter of certainty. The cost of production had increased largely, and the cost of canal irrigation enormously, while the average yield had diminished, and prices had only risen by a quarter. While the high villages which had not suffered, were in the most prosperous condition, the estates which had been most severely stricken by swamp and *reh* were in the most pitiable state; and the villages of the tract included examples of stages intermediate between the two extremes.

In this circle the demand was increased by 1·4 per cent., while additional cesses raised the enhancement to 5·3 per cent. on the total burden of 1876, and to 6·2 per cent. on that of last Settlement. The demand was 98·1 per cent. of that given by sanctioned rates, and 89·6 and 88·7 per cent. respectively of the rent and produce estimates. While many of the finest villages had their demand very considerably enhanced, liberal relief was granted to the injured villages. And especially the separation of a portion of the demand in the form of owner's rates, for the first time rendered it possible for those villages to reduce their irrigation in which that irrigation was most extensive, and its excessive nature most deleterious. It is probable that this reduction of irrigation will somewhat reduce the revenue of the circle below the estimate; but the water thus set free will be available in the Nardak or elsewhere, where it will bring in the same revenue as it would have done

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Resume of assessment Karnal Bangar.

in this circle; while its transfer from a swamp-stricken to a thirsty tract will be an unmixed benefit to both.

346. Of Karnal Bangar 47½ per cent. was cultivated, 1½ per cent. was tottering on the verge of barrenness, 27 per cent. was absolutely barren, while of the 24 per cent. entered as pasture, much was really not worth the labour of tillage. The soil, in all the lower parts of the tract, is naturally fertile, and, when fairly treated and not deteriorated by external causes, yields crops as fine as could be desired. But the terrible evils of *reh* and swamp, which have thrown hundreds of acres out of cultivation, have forced the people to replace the loss, where possible, by bringing under the plough high arid tracts characterised by most of the features of Nardak cultivation; and, where this was impossible, to exhaust their remaining fields by a system of the most ruinous over-cropping. These evils were ever increasing; and if they were of later date in Karnal then in Panipat they were in one respect more injurious, inasmuch as they more often held out delusive hopes, which led to much fruitless expenditure of seed and labour. Seventy per cent. of the cultivation was protected from drought by a irrigation which, though often uncertain in supply, yet never altogether failed, and was obtained with little labour and at a very moderate cost: 22 per cent. was manured. Tenants paying no rent to the owners held at least 24 per cent. of the cultivation, while strangers owned or held in mortgage 6 per cent. more; Jats and Rors cultivated 54 per cent., the remainder being held by Rajputs and the like. The cultivators were on the whole equal to the area under the plough; but the agricultural appliances were insufficient, while both were badly distributed, being most scanty where most needed. The population in the injured villages was excessive, and was already being decreased by emigration chiefly, at present, of the noncultivating classes.

More than a third of the tract was held by the Mandals in direct management till 1847, when it was assessed fairly enough; as the remainder also had been, after a period of exorbitant over-assessment, in 1842. But from 1850 till settlement, the history of almost every village in the tract had been one of deadly sickness, increase of swamp, and diminution of fertility. On the whole, cultivation had increased by 6 per cent., but the area had been largely kept up by the substitution of bad land for good; while the irrigation, which had increased still faster, had, with the exception of three villages, mainly extended where it was least wanted. Nine villages had lost 26 per cent. of their whole cultivation; eight more had lost 11 per cent., increase had taken place in seven villages only; population had throughout gained upon the cultivated area; while not only was expansion impossible in those villages in which it was most needed, but it appeared to the Settlement officer that the productive area would contract year by year. The cost of production had increased largely, and the cost of canal irrigation enormously, while the average yield had very

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Revenue of assessment Karnal Bangar.

greatly diminished, and prices had only risen by a quarter. The villages may be classified as were classified those of Panipat and it is enough to say that while the first class included four villages only, and one of those over peopled, the third and worst class comprised most of the estates, if not most of the cultivation, in the circle. In the villages where progress had been made, it was impossible to enhance the demand in anything like the same proportion, as almost the whole increase in cultivation was confined to two villages which cultivated 7,905 acres against 4,270 at Settlement; and it was evident that their assessment could not be doubled.

In this circle the demand was enhanced by 12·4 per cent., an increase which 12 per cent. of additional cesses imposed since 1847, raised to 16·9 per cent. on the burden of 1876, and to 19·7 on that of last Settlement. This demand was 106·8 of the demand given by the sanctioned rates, and 102·9 and 103·5 per cent. of Mr. Ibbeton's rent and produce estimates respectively. The detailed assessment has conferred the same boon in this circle as in Panipat Bangar; but the benefit of the separation of the owner's rates was even more valuable here than in that circle, in proportion as the swamp was more extensive.

The owner's rate system.

347. Up to the revision of settlement, the canal irrigated land had been assessed exactly like any other land, a full assessment being realised year by year. This led to over-irrigation, and at the revision the owner's rate system was introduced, by which a portion of the revenue takes the form of a rate, called the owner's rate, which is realised in any year only on land irrigated from the canal in that year. After much discussion it was decided that this rate should, on the Western Jamna Canal, be fixed at half the occupier's rates, or rates charged by the Canal Department for the water they supply. The Canal Act under which these rates were imposed, had declared that they should not exceed the assessment leviable on the increase in value of the land due to canal irrigation, and an impression had been created thus that the whole assessment thus leviable was to take the form of owner's rates, the remainder or fixed assessment being assessed on the land in its dry aspect, and payable from it without any irrigation whatever. But the owner's rates, being fixed by Government could not possibly represent an assessment the amount of which must necessarily vary with the circumstances of each village. It became necessary, in fact, "first to calculate the average occupier's rate, secondly to deduct half of this from the gross assessment calculated in the usual way, and thirdly to announce what remained after this deduction was made as the true ordinary or fixed assessment. The fixed assessment is thus made a sort of residuum from the owner's rate, and must of course in some cases fail to be in reality what it purports to be." The subject of the nature of the fixed "dry assessment" in canal irrigated estates is one of especial importance in Karnal. A full discussion

Five-yearly revision assessment in certain villages.

of it will be found in paras. 746-749 of Mr. Ibbetson's Settlement Report.

348. As so large a portion of the fixed demand is so often an assessment on irrigation. Mr. Ibbetson in accordance with the directions of the Financial Commissioner carefully reviewed his assessment of each village of the canal tract, estimated roughly how much of the fixed demand should be considered to be assessed on the area then irrigated, tabulated this assessment, its incidence upon the canal area, the area shown as canal irrigated, and the average past irrigation, and classified the villages according as reduction of irrigation might be made to a greater or less extent without entailing reduction of demand. The general result was that in 23 villages the fixed demand could be paid without irrigation at all; in 43 more, irrigation might be very considerably, and in 13 more, less largely circumscribed without necessitating revision of assessment; in 21 more any very material reduction of irrigation would call for corresponding relief; while in the remaining 36 the fixed demand was so high that it could not be paid in full unless the supply of water was kept up, practically speaking, to the existing standard.

"Under these circumstances the Financial Commissioner suggested that it might be well to settle the canal tract for 15 years only. On general grounds, the shortening the term of settlement was of course objectionable, if it could be avoided, and the Government finally directed that the term of the settlement should be for 30 years; but that Government should reserve discretion to revise at the end of each five-yearly period the assessment of those villages in which the fixed demand fell short of the true dry assessment of the village. Mr. Ibbetson had endeavoured so to frame his assessments that in no village should the fixed demand fall below a moderate dry assessment. But when re-considering the assessment of each canal village in connection with the question to be discussed presently of future reduction of canal irrigation, he selected the five villages of Begampur, Rer, and Kutana in *tahsil* Karnal, and Baholi and Wazirpur Titana in *tahsil* Panipat, and inserted in their administration papers a clause securing to Government the power of five-yearly revision. They are all swampy villages of the most aggravated description, in which the cultivators have been reduced to abject poverty by injury from the canal unaccompanied by sufficient relief; and in assessing them Mr. Ibbetson had been obliged to consider what they could pay in their abnormally depressed condition, while leaving room for them to recover themselves. He felt himself compelled to impose, a very moderate fixed demand, but he thought it was almost certain that they would improve rapidly under a moderate assessment, and especially if, as was probable, the realignment of the canal relieved them of their swamps; and that their assessment was lower in relation to their mere physical capacity than that of any other villages in the tract."

The order that these villages should only be assessed for five years was overlooked, but the demand has been raised from Rs. 2,530 to Rs. 3,370, with effect from Rabi 1891. The revised assessment will remain in force for the rest of the term of Mr. Ibbetson's settlement.

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Average receipts from owner's rates.

349. The system of owner's rates was introduced into *tahsil* Panipat, and *pargana* Karnal at Mr. Ibbetson's settlement, into Indri from Kharif 1886, and into Kaithal from Kharif 1888. Taking as his basis the canal irrigation of past years, Mr. Ibbetson put the receipts from owner's rates on the assumption that irrigation would not be diminished at Rs. 1,03,830, namely Rs. 74,230 in Panipat and Rs. 29,600 in pargana Karnal. He did not expect that this amount would in fact be realized. Mr. Douie estimated owner's rate on existing irrigation in Kaithal at Rs. 13,225, this being one half of the average demand for occupier's rate for five years. Judging from the income since 1886 the average owner's rate in Indri may be put at about Rs. 900. The actual receipts in Panipat and *pargana* Karnal for every year since 1880-81 are shown below :—

1880-81	1881-82	1882-83	1883-84	1884-85	1885-86	1886-87	1887-88	1888-89	1889-90.
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
70,386	1,02,950	77,444	80,414	86,384	36,986	42,630	74,687	40,737	47,124

The receipts in Indri and Kaithal have been—

Year.	Indri.	Kaithal.
	Rs.	Rs.
1886-87	910	...
1887-88	737	...
1888-89	830	9,475
1889-90	1,141	12,441

Incidents attached to owner's rate.

350. It has been decided that all cesses will be levied upon owner's rates as though they were land revenue. It has also been ruled that no allowances to *zaildars* or chief headmen will be made out of this rate. It has also been ruled that owner's rates not being land revenue go to Government, whether the land on which they are levied is assigned or not. But the Panjab Government, in its No. 1365 of 18th December 1879, sanctioned the exemption from these rates of all canal irrigated land in the city of Panipat on the ground that the city lands, which are held either revenue-free or on a quit rent, enjoyed canal irrigation at the time of the granting; and the same principle has been extended to the Mandals and other assignees, the owner's rate of all revenue-free villages, which were irrigated from the canal during the currency of the Regular Settlement, going to the assignees for the term of the revised Settlement.

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PART III.—GENERAL.

Cesses.

351. The cesses are as follows:—

Local rates	Rs.	10	6	8 (1)	*Patwari* cess, in Kaithal,	Rs.	4	11	0
Lambardari cess ...	„	5	0	0	do. pargana Indri ...	„	5	7	6
Patwari cess, in Panipat and pargana Karnal	„	4	4	0					

Di-alluvion.

352. Under the Regular Settlement the 10 per cent. rule was in force in Panipat and *pargana* Karnal, and as it was unaccompanied by any provision for distributing the loss caused by diluvion over the community, and as land newly thrown up is invariably the common property of the village, even when found on the spot where the land of an individual has just been cut away, the result was that great hardship was inflicted upon particular landowners who often lost a large proportion of their land, but could obtain no relief because the injury did not amount to a tenth of the whole assessed area of the village. In accordance with the orders of Government each case of gain and loss will in future be considered without limit as to extent. Rules for alluvion and diluvion assessments in Indri have been drawn up by the Settlement Officer, and the sanction of Government to their enforcement will be solicited in the Settlement Report. The chief point in the rules is the laying down of certain fixed rates for the assessment of new cultivation due to river action in accordance with the character of the land as evidenced by the crops grown upon it. A light rate of one anna per acre is also imposed on grazing land.

Assignments of land revenue.

352. Table No. XXX shows the number of villages, parts of villages and plots, and the area of land of which the revenue is assigned, the amount of that revenue, the period of assignment, and the number of assignees for each *tahsil* as the figures stood in 1888-89. Between one-third and one-fourth of the whole land revenue of the district is assigned. The principal *jagirdar* families have already been noticed, and a statement of the revenue of each *jagir* in Kaithal and Indri given, in Section F of Chapter III. The revenue-free holdings of the Dehli territory being released under the regulations, or in accordance with their spirit, are subject to rules wholly different from those which govern similar tenures in the remainder of the Punjab. Within a very few years of the establishment of English rule the revenue free tenures of the Panipat district came under investigation. The claims brought forward were numbered by thousands; forged grants manufactured at Dehli found a ready sale in the tract; there was hardly a village in which assignments of revenue were not asserted to have been made; good land was claimed in the place of bad in the most unblushing manner, and the revenue recovered by Government on land resumed as having been held free on invalid titles amounted to some Rs. 20,000 annually. The investigation dragged on in a very dilatory manner, and may be said to have been only really concluded during Mr. Ibbetson's settlement.

(1) Panjab Government Notification No. 208, dated 9th September 1889.

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Assessment of assigned revenue.

353. At first no sort of settlement was made of any land of which the revenue was assigned, the assignee being left to collect rent from the owners. So long as the Government practically took the whole rent in the shape of revenue, this omission was of no importance; in fact, the owner of such land was better off than he who owned land assessed to Government revenue, for the former paid a demand varying with the seasons, the latter a fixed demand of extreme severity. But, as the Government revenue became gradually so limited as to leave a margin of profit for the owner, attention was attracted to the fact that unless we interfered between the owner and assignee so as to secure to the former the same margin of profit which he would have enjoyed had the revenue of his land not been assigned, we were doing him an unjustice, and conferring on the assignee larger rights than we claimed for ourselves and therefore larger than we had it in our power to alienate. This view appears to have been first authoritatively accepted for this part of India in 1830, when the Sadr Board pointed out that "where the assignment had been made by the British Government, it could have had no intention to inflict injury on all the resident proprietors of the *pargana*, or to compromise the rights, the maintenance of which had been pledged to them in common with their fellows throughout the country by Regulation XXV of 1803; and that Government had always declared that in granting *jagirs* or other lands they merely proposed to assign away their own revenue, and not the rights of the people. That Government would also appear, though somewhat tardily, to have at last received the conviction that the only way in which the ruling power could do its duty and secure the rights of the porprietors in such cases was to come forward and make similar arrangements on behalf of the assignees of these revenue-free holdings as it makes with communities paying revenue to Government."

But the Board went further than this, and extended the same principle to all assignments including such as had been granted under native governments, and only confirmed by the British. It remarked :—

"The same rule appears to the Board to hold good as regards all free holdings, and, wherever a resident occupant community are found in possession of land assigned as rent free, they should, as provided by section 17 Regulation VII of 1822, have similar terms made in their behalf with the Government assignee as the people of the neighbourhood obtain directly from Government."

The Lieutenant-Governor, N. W. P. accepted these principles in his No. 1058 of 9th August 1839; he pointed out several instances in which they had already been acted upon, and remarked that he "believed that every rent free holding; small and great, had been already subjected to this process in the districts in which the revised Settlements had been concluded." Upon this the Board remarked, that "the principle had thus been declared applicable to every rent-free holding, small and great," called for a report at once upon the larger holdings, and

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remarked that "the smaller holdings would be dealt with as the investigation into revenue-free tenures was completed for each district." The principle was embodied in § 117 of the Directions to Settlement Officers, and the Settlement of the Mandal tract was effected in accordance with it in 1847.

Previous Settlements of assigned revenue.

354. In the Settlement of 1842, the Settlement Officer proposed to settle villages of which the revenue had been assigned, together with the Government villages of *pargana* Panipat. But he was directed by the Board not to interfere, as it was "not the wish of Government that sub-sttlement should be made with the proprietory communities in *maáfi* estates." Accordingly, no records were prepared, and the assignees continued to realise rent till 1850. The omission to make a proper Settlement was then brought by petition to the notice of Government which called for a report, and remarked that "if the rights in confirmed revenue-free villages in the Delhi division have hitherto remained undetermined, it is time that this state of things should cease." The Board reported on the question, which in that tract concerned only grants made by former governments and confirmed by us. The Senior Member held strongly that the native government which had made the grant had put the assignee in the position of landlord with the power to collect rents; and that it was unjust to "form a theory" that the Government had no right to alienate the rights of the owner and to reverse an arrangement of long standing. The Junior Member pointed out that what was proposed to be done was to ascertain and record existing rights, and that the Senior Member's objection did not touch the advisability of this process. The Lieutenant-Governor agreed with the Junior Member and directed all existing rights in revenue-free holdings to be investigated and adjusted. Accordingly between 1850 and 1852, records were prepared and summary settlements made for all lands of which the revenue was assigned. In some few cases the demand thus fixed was so high that the owners preferred to continue the old terms; but, as a rule, the settlements then made were acted upon up to the recent revision.

Unfortunately, too, the records were not prepared as carefully as they should have been; and the record of ownership was sometimes indefinite or entirely wanting. In some of these cases the revenue assignees of plots of land, locally called *milk* to distinguish them from assignments of villages or shares of villages, claimed ownership in Mr. Ibbetson's Settlement. But their claim was entirely without foundation. Mr. Hugh Fraser wrote :—

"The *milkis* in this district have not on any occasion that I am aware of laid claim to any proprietory right in the soil. All they contend for is that share of the produce which would belong to the State if the lands had not been alienated. This is the opinion of every *milki* that I have ever spoken to on the subject." Again :—"In this district the *zamindar's* right is not only distinct from, but scarcely ever belongs to the person on whom has been bestowed the

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Government share of the produce. From among the hundreds of milk tenures which I have had occasion to investigate during my residence in this district, I can only recollect one instance in which the milkis claimed the *biswahdari hakk*; and in that case a distinct *kabala* was forthcoming."

Assessment of *jagir* lands of *pargana* Indri and *tahsil* Kaithal.

355. The jagirdars of Indri and Kaithal are not properly speaking assignees of Government revenue, but mediatised chiefs whom we took under our protection, in return for which they agreed to furnish certain military aid. The obligation to do so was afterwards commuted into a fixed money payment, calculated usually at two annas per rupee on the revenue of their *jagirs*. Until the regular settlement the jagirdars collected their revenue by levying *batai* and *zabti* rates. It was at first proposed only to assess *khalsa* villages, and merely to draw up rules of practice (*dastur-ul-'aml*) for *jagir* estates, unless either the *jagirdar* or the *zamindars* demanded a cash assessment. But after a lengthy correspondence it was decided that all *jagir* estates must be put under assessment. When the regular settlement broke down, the benefit of the revision effected was at first denied to the landowners in *jagir* villages, who were given the option of paying *batai* to the *jagirdars*, if they considered the cash assessment oppressive. Some villages in the Karnal Khadir belonging to the Kunjpura *jagir* paid by *batai* up to the recent revision of settlement.

Government lands; forests, &c.

356. Table No. XVII shows the area and income of Government estates; while Table No. XIX shows the area of land acquired by Government for public purposes. The cantonment lands have already been discussed in para. 172 and the settlement of the leased estates in paras. 157-164

Government rights in canal land in Panipat and *pargana* Karnal.

357. Mr. Ibbetson thus describes the action taken at his Settlement regarding Government rights in land occupied for the old Western Jamna Canal, a burning question in the Karnal district:—

"Government, in the separate departments, is in possession of a great deal of land situated in the tract, occupied chiefly by the canal channels and distributaries. But the question of ownership was more difficult. All the canal land, I think without a single exception, had been entered as property either of the village or of the individuals in the old record. Where land had been taken up and paid for by Government there was no dispute; or in the very rare cases when there was, the file was forthcoming, as no Karnal records had been destroyed in the mutiny. As regards the old distributaries, too, it was admitted that the people had made them themselves on their own land—a fact specifically stated by the Superintendent of Canals in his No. 334, of 5th December 1847, to Commissioner, Delhi, as a ground for refusing remission of revenue on the land so occupied,—and that though Government had, when the water rates were raised, taken over the arrangements for their clearance, yet it had acquired only possession, and not property in them. But the Canal Department claimed property in the old canal bed and banks, on the score of long possession, of inheritance from

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the preceding Government, and of what was described in 1827 by Captain Colvin as "a long existing custom, authorised when first acted upon, though the dates cannot be traced, affiirming the right of Government as lord paramount, to the occupation of the ancient line of water-course; declaring its bounds to extend to 10 yards from the edge of the banks; and applying equally to the line of canal, and the lines of outlets and escapes from the canal." This claim the people in most instances resisted; and we could not listen to it in the face of section 19 of the Land Revenue Act. In his No. 6501 of 6th October 1873, the Financial Commissioner directed us to ask the people, where they refused to admit the proprietory rite of Government, whether they objected to the entry of a Government right of occupancy; and on our doing so, the villagers readily consented in every single instance to an entry to the effect that Government was entitled to hold the land so long as it was needed for canal purposes. This entry was accordingly made, and its meaning defined by a clause in the administration paper. In his No. 1261, of 3rd March 1879, and subsequent correspondence, the Financial Commissioner ruled that land for which no compensation had been paid was held by Government only for so long as it was needed; and that the original owners retained the reversionary right when this ceased to be the case; this being precisely the view urged all along by the people. He directed that—(1) land for which compensation had been made should be entered as Government property; (2) where no compensation had been made, the entry already described was sufficient; (3) and that even where the people had entered such land as Government property, their reversionary right should be recorded. Compensation was defined to include exchange of land, as well as cash payment; and when land had been taken and payment made for the cultivated parts only, it was ruled that the payment covered the whole."

In 1886 the Financial Commisssioner issued the following orders as to land on the old canal which is no longer required by the Canal Department:—

(*a*) "that both below and above Indri, all land no longer now required for canal purposes be relinguished; the canal officers deciding what land can properly be so treated, and furnishing to the Deputy Commissioner his lists and plans thereof, but leaving it to the Deputy Commissioner to complete the relinquishment under the procedure prescribed in that behalf."

(*b*) "that similar relinquishments be continued hereafter in respect of any other land, the further occupation of which may at any time appear to be unnecessary."

The Deputy Commissioner's report has not yet been submitted.

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CHAPTER VI.

TOWNS & MUNICIPALITIES.

General statistics of towns.

355. At the Census of 1881, all places possessing more than 5,000 inhabitants, all municipalities, and all head-quarters of districts and military posts were classed as towns. Under this rule the following places were returned as the towns of the Karnal district :—

Tahsil.	Town.	Persons.	Males.	Females.
Karnal ...	Karnal	23,133	12,626	10,507
Panipat ...	Kunjpura	4,725	2,269	2,456
	Panipat	25,022	12,431	12,591
Kaithal ...	Kaithal	14,754	7,302	7,452
	Siwan	5,717	2,992	2,725
	Pundri	4,977	2,379	2,598
	Pehowa	3,408	1,985	1,473

The distribution by religion of the population of these towns and the number of houses in each are shown in Table No. XLIII, while further particulars will be found in the Census Report in Table No. XIX and its Appendix and Table No. XX. The remainder of this chapter consists of a detailed description of each town, with a brief notice of its history, the increase and decrease of its population, commerce, manufactures, municipal government, institutions, and public building; and statistics of births and deaths, trade and manufactures, wherever figures are available.

Town of Karnal.

356. Karnal is a municipal town and the administrative head-quarters of the district. It lies in latitude 29° 42′ 17″ north longitude 77° 1′ 45″ east. Its population is 23,133 souls consisting of 15,215 Hindus, 110 Sikhs, 213 Jains, 7,550 Musalmans, 45 others. It stands upon comparatively high ground, just above the old bank of the Jamna overlooking the Khadir or lowland tract. The river now flows 7 miles away to the east, and the old Western Jamna Canal passes just beneath the city.

The town is enclosed by an old wall, immediately outside of which runs a metalled road, and has ten gates, of which the Nawab, Kalandar, and Ghazni to the east, and the Júndla to the west, are the principal ones. To the west of the town lies an extensive suburb, which was the *sadr bazar* of the old cantonment. To the north about a mile from the town lie the

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civil lines and public offices, on the site of the old cantonment. The streets of the town are all well paved or metalled, but almost all of them are narrow and crooked. The drainage and indeed the sanitary arrangements inside the town are fairly good. The principal buildings of antiquarian interest are—(1) Kalandar Sahib's tomb, situated just outside and to the east of the town. The grave is made of marble, and decorated with sculpture. This tomb was built by Ghias-ud-din, Emperor of Dehli, to the memory of Boali Kalandar (para. 127). The inhabitants of Panipat, however, deny that this *fakir* was buried at Karnal, and they have a large tomb also to his memory in their town. Within the enclosure are a mosque and a reservoir with fountains built by the Emperor Alamgir, and outside, a kettle drum balcony. (2) Cantonment Church tower.—This is a fine old massive tower, and can be seen at the distance of several miles as it is 100 feet in height. The body of the church was dismantled after the Cantonment of Karnal was abandoned in 1841 on account of its unhealthiness from the swamps of the Western Jamna Canal in its vicinity; the materials of the church were removed to Ambala. The tower is surmounted by a large ornamental cross, and inside the tower are several memorial tablets, which were removed from the walls of the church.

There are two cemetaries of the late cantonment with crowded tombs bearing evidence to the terrible mortality of the troops from the ravages of swamp-created maladies.

The fort of Karnal once belonged to Bhag Singh, former Raja of Jindh. It was taken from him by the Mahrattas, and eventually came into the possession of Sardar Gurdit Singh of Ladwa. It was captured by the English in 1805 and made over by General Ochterlony to Muhamdi Khan (Mandal), grandfather of Azmat Ali Khan, the present Nawab of Karnal. On Karnal being formed into a British cantonment, it was decided by the authorities to take over the fort, suitable compensation being made to the Nawab. It was finally selected as a residence for Dost Muhammad Khan, Amir of Kabul, in which he was detained for about six months, on his way to Calcutta. The fort was used as a jail, as quarters for Native Cavalry, and as a poor-house. In 1862, it was made over to the Education Department when the district school was removed into it from the city.

The city of Karnal is said to have been founded by Raja Karna, a General on the side of the Kauravas in the war of the Mahabharata. It would seem to have been a place of but little importance in early historical times; for while Panipat, Kaithal, and Thanesar are mentioned even by the early Arab geographers, and these towns and Samana and Sunpat are commonly referred to by the early historians, Karnal is first mentioned towards the end of the Pathan dynasty. The battle of Karnal has already been described in Chapter II, as indeed has the history of the

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town under the Sikhs. As a town, it owes much of its importance to Raja Gajpat Singh of Jindh who built the wall and fort, and under whose rule it increased considerably in size.

Jacquemont describes it in 1831 A.D., in the following words:—

" In the interior, an infamous sink, a, heap of every sort of un-"cleanliness. Amongst heaps of dung, brick-rubbish, and concourse "of beasts are winding paths scarcely passable for horses, and having "here and there a few miserable huts. I have seen nothing so bad "in India; and it is fair to mention that amongst the natives its "filth is proverbial."

This is very far from applying to the present state of the town, which is internally well drained and clean. The inhabitants are Jats, Rains, Rors, and the ordinary miscellaneous mixture of Brahmans, Banias, Musalmáns, and menials which always collects in a city. In the *sadr bazar* live many Purbias and Khatiks, &c., who came here with the troops, and used to find employment on the stud lands.

The city of Karnal had the very worst possible reputation for unhealthiness, and not undeservedly. The old canal cut off a great loop of the Khadir to the west of the city, while to the south lies a great natural bight. The drainage of the Bangar ran over the bank, and, held up by the canal and the Grand Trunk Road, formed a huge swamp right under the city; while rice cultivation is carried on up to the very walls. When, after the increase of irrigation following upon the famine of 1833, the carrying capacity of the canal was increased to the utmost, the swamps thus formed became pestilential to a degree; and the sickness in cantonments became so great that the troops were moved to Ambala about 1844, and the cantonments finally abandoned. In 1844, rice cultivation near the city was prohibited, and remained forbidden for many years, but has since been resumed. And canal irrigation was temporarily stopped in the neighbourhood of Karnal on sanitary grounds.

The filling up of the ditch which formerly surrounded the town, and the substitution of a masonry drain, has done much to improve its sanitation. The Karnal tank, situate at the north of the town, named after Raja Karna, its founder, is held in much veneration by the Hindu community. This tank was believed to add to the unhealthiness of the town by its not infrequent overflow. This has in a great measure been remedied by deeper excavation, while its margin has been embellished with masonry steps. The old canal has ceased to run and the new canal passes through high land a mile or two to the west of the city. Some money has been spent of late on a small town drainage scheme and it may be hoped that the health of the place will improve.

The opening of the railway on the opposite side of the Jamna has somewhat prejudiced the commercial position of Karnal, having attracted from it much of the commerce formerly

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passing along the Grand Trunk Road, but the Dehli-Kalka Railway, which was opened in the present year, may bring back trade. The municipality of Karnal was first constituted in 1867. It was re-constituted in 1884 and is now a municipality of the 2nd class. The committee consists of five nominated and twelve elected members, from whom a president and vice-president are chosen by election. Table No. XLV shows the income of the municipality for the last few years. It is chiefly derived from octroi levied on the value of almost all goods brought within the municipal limits for the consumption or use of its inhabitants. The chief manufactures are—country cloth for local consumption, and blankets, boots, and brass vessels for export. A considerable trade in leather is carried on; and there is a large population of *Chamars* who execute contracts for harness, saddlery, boots, and leather articles required by the cavalry and artillery. Skilful artificers are still to be found here, survivals from the old cantonments.

The public buildings in the civil station are the Deputy Commissioner's Court, Treasury, Police station, Police Lines, Staging Bungalow, Church, and Jail, also the tower of the old cantonment church. In the suburbs there are a District School, and a Post Office, one Government and two other *sarais*, a dispensary, and the Municipal Committee room.

The Government maintains here a branch of the Hissar Cattle Farm and depôt for rearing army remounts.

Limits of enumeration.	Year of Census.	Persons.	Males.	Females.
Whole town ..	1861	29,007	15,951	13,056
	1881	23,133	12,626	10,507
Municipal limits ..	1868	29,007	..	..
	1875	24,014	..	..
	1881	22,528	..	..

The population as ascertained at the enumerations of 1868, 1875, and 1881 is shown in the margin.

It is difficult to ascertain the precise limits within which the enumerations of 1868 and 1875 were taken; but the details in the margin, which give the population of suburbs, throw some light on the matter. The figures for the population within municipal limits according to the census of 1868 are taken from the published tables of the census of 1875; but it was noted at the time that their accuracy was in many cases doubtful. In 1881 the town included all that lay within municipal boundaries, together with the encamping ground, Civil lines, and Stud Depôt.

Town or suburb.	Population.	
	1868.	1881.
Karnal town ..	29,007	21,800
Matak Majri ..		734
Chand Sarai ..		294
Civil Lines ..		605

The Deputy Commissioner wrote as follows in the district report on the Census on 1881 regarding the decrease of population :—

"The decrease is in some measure due to the diminished trade owing to the opening of the railway, to the removal of the Stud

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Department, and to the presence of troops on the encamping ground in 1868, but still more to the unhealthiness caused by the canal and the swamps around it, which has been intensified since 1868."

In the case of all the towns the constitution of the population by religion, and the number of occupied houses are shown in Table No. XLIII, and details of sex will be found in Table No. XX of the Census Report of 1881. The annual birth and death-rates per mille of population since 1881 for Karnal are given below, the basis of calculation being in every case the figures of the most recent Census. The figures for deaths show the extreme unhealthiness of the place. One tenth of the population died in 1884, when a very violent outbreak of fever took place in consequence of the heavy rain-fall and the flooded condition of the environs of the town:—

Detail.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	Average.
Birth-rate	26	30	36	43	28	36	35	30	33	33
Death-rate	43	36	38	102	46	36	59	33	36	48

The actual number of births and deaths registered during the last five years is shown in Table No. XLIV.

Town of Kunjpura.

357. Kunjpura is a small town in latitude 29° 43' north, longitude 77° 7′ 15″ east. It has a population of 4,725, consisting of 2174 Hindus, 1 Jain, and 2,550 Musalmáns. It is situated in the Khádir of the Jamna, which now flows about 2 miles to the east, and is distant from Karnal 6 miles north-east. It is the residence of a distinguished Muhammadan family, whose head enjoys the revenue of the neighbourhood as *jagirdar* and bears the title of Nawab (para 194).

The town is enclosed by an old masonry wall, which is now in a delapidated state. The public buildings are—a school, a police *chauki*, and dispensary. The Municipal Committee has been abolished. The trade of the town is wholly local and unimportant. The history of Kunjpura has already been given (para 194). It was from the cover of the fine orchards which still exist close to the town, that a division of the Persian army under Nadir Shah made an important flank movement on the force of Muhammad Shah at the battle of Karnal in 1739 A. D. The population as ascertained at the enumerations of 1868, 1875, and 1881, is shown in the margin.

Limits of enumeration.	Year of Census.	Persons.	Males.	Females.
Whole town ..	1868	5,162	2,658	2,504
	1881	4,725	2,269	2,456
Municipal limits	1868	5,162	..	..
	1875	5,049	..	..
	1881	4,725	..	..

Town of Panipat

The difficulty of comparing the results of these three enumerations noted in the case of Karnal exists here also.

358. Panipat is a municipal town and administrative headquarters of a *tahsil* of the same name. It lies in latitude 29° 23′ north longitude 77° 1′ 10″ east, and has a population of 25,022 souls, consisting of 7,334 Hindus, 1 Sikh, 768 Jains, 16,917 Musalmans, and 2 others. It is situated on the Grand Trunk Road, 53 miles north of Dehli, near the old bank of the Jamna, upon a high mound composed of the debris of centuries. From all sides the town slopes gently upwards towards an old fort, which is its highest point, and has low and squalid outskirts, receiving the drainage of the higher portion. The town is enclosed by an old wall which is formed by the back of many houses, and has 15 gates, of which the Salarganj to the north, Shahvilayat to the south, Madhoganj to the east, are the principal ones; suburbs stretch in all directions except to the east. The town is traversed by two main *bazars* running respectively from east to west and from north to south, the latter being the principal one. The streets are all well paved or metalled, but are narrow and crooked.

The principal building of antiquity within the city walls is the Dargah Kalandar Sahib (para. 127). The tomb, with the exception of the pillars of the "*dalan*" or hall, which are of touchstone, was erected by Khizi Khan and Shadi Khan, sons of the Emperor Ala-ud-din, Ghori. The touchstone pillars aforesaid were erected by one Razakullah Khan, son of Nawab Mukarrab Khan, a *Hakim* in the service of the Emperor Akbar. The "*Khadims*" of the *Dargah* still hold from Government a grant of land yielding Rs. 1,000 a year. They originally received Rs. 1,950 a year, but the income was reduced in 1858 in consequence of its having been discovered that a crusade had been preached against the British Government in 1857 at this place.

The town is of great antiquity, dating back to the period of the war between the Pandavas and the Kauravas, when it formed one of the well known five "*pats*" or "*prasthas*" demanded by Yudhishthira from Duryodhana as the price of peace. In modern times the plains of Panipat have thrice formed the scene of decisive battles, which sealed the fate of Upper India. (See paras. 43, 44, and 49). In the first battle of Panipat Ibrahim Lodi fell; and an inscribed platform has been erected in his memory by the District Committee, just outside the octagonal tower of a garden wall which is still standing. When, however, the Grand Trunk Road was made, the Road Department destroyed the tomb (so says General Cunningham), and now an in significant masonry platform with a commonplace inscription, is all that stands in the name of the Emperor. The old tomb used to form a place of pilgrimage for the people of Gwaliar, since the last Raja of the old Gwaliar dynasty fell in the same battle.

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The city is built upon a small promontory round which the old bed of the Jamna flows, and is well raised on the accumulation of centuries, the old fort in particular commanding the country for a considerable distance. The town is embowered in trees, and the white buildings shining through them present a very pleasing appearance as you approach it. Panipat must in old times have been of much greater size than it now is, and Jacquemont describes it as the largest city, except Dehli, which he saw in northern India. Ruins of old shrines extend to a considerable distance round the town, and many mosques, shrines, and gardens of very considerable pretensions still existing, but now in sad disrepair, tell of former importance. Many of the buildings possess considerable historical interest. An old Indian gun, some 8 feet long, made of bars of iron bound together by iron hoops, and with its name of *ganj shikan* or fort-breaker cast on it, stood in the fort till after the mutiny, when it was destroyed and the gun thrown over the parapet. It has lately been moved to Dehli. The inhabitants are Arabs, Rajputs, Pathans, Bairupias, Kayaths, and the ordinary city classes.

The city of Panipat used to be comparatively healthy, till, in 1852, a cut called the Rer escape was made to drain some swamps at the junction of the Dehli and Hissar canals. This cut, assisted by the Grand Trunk Road held up the Bangar drainage in a loop of the Khadir, just as the canal at Karnal, till the banks broke and the water poured down the Burhi Nadi, which would ordinarily have carried it off harmlessly, but which had silted up to a great degree since the cut stopped the regular flow of drainage on to the city of Panipat. The sickness so caused was so great that in 1854 the head-quarters of district were moved from Panipat to Karnal on this ground. Rice cultivation was then prohibited in the neighbourhood of the town, but the prohibition is no longer in force. Drainage improvements recently carried out by the Irrigation Department will probably result in a great reduction of disease. The chief families have already been described in Chapter III, Section F. Mr. Ibbetson thus dsecribes the town population:—

"The people of Panipat are proverbially classed with those of Kasur and of Jagadhri as bearing not the highest of characters.—I think that, taken as a whole, they perhaps deserve their reputation. They are almost all more or less educated men; they have the misfortune to hold their land revenue-free, so that they are never wholly without means; but they are too *sharif* to cultivate themselves, while the body of landowners has out-grown the capacity of the land to support idle hands in comfort. Of course there are numberless individuals who earn an honest livelihood by service or the like, and very many whose character for probity is unblemished, for many of whom I have the highest personal respect. But there is a very large residuum indeed who have attained the most consummate skill in chicanery; and their nearest female relations, all of whom are strictly secluded, and almost all of whom possess land under

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the Muhammadan law of inheritance afford them a wide field for its practice without danger, which they take advantage of to the full. Their law of succession, and the tendency to intellectual subtlety which marks the race, have rendered their tenures and titles extraordinarily complicated; and an 8-anna power-of-attorney, attested by a couple of friends, and purporting to empower the holder to dispose fully of the lands and other property of his wife, sister, or mother, is often the basis of very curious preceedings indeed. I should add that the above description is far less true of the Rajputs than of the other classes of inhabitants; and is especially inapplicable to the Kaliar Rajputs, who. cultivating themselves, and being therefore looked down upon by their fellows, have generally escaped contamination. But the typical Panipat suitor, with a petition of great length and intricacy, and displaying great research in fields of jurisprudence wholly irrelevant to the matter at issue, with a small law library of repealed Acts in his pocket, and who pours out in very high-flown language an interminable argument of which the locus is a circle carefully described round the point in dispute, is not a pleasant man."

The opening of the railway on the opposite side of the Jamna somewhat prejudiced the commercial position of Panipat, having attracted from it much of the commerce formerly passing along the Grand Trunk Road. But the new Delhi-Kalka Railway passes beside the town. The municipality of Panipat was first constituted in 1867. It was reconstituted in 1884 and is now a municipality of the 2nd class. The committee consists of five nominated and eleven elected members, from whom a president and vice-president are chosen by election. The income (table XLV) is chiefly derived from octroi levied on the value of almost all goods brought within the municipal limits for the consumption of its inhabitants. The next important occupation after agriculture is that of trade and banking. There is little trade with towns at a distance. What there is, is chiefly local trade and banking. The manufacture of copper vessels for export is of some importance. There are several large establishments for the manufacture of glass for ornamenting women's dress. The only other manufactures, other than those carried on in almost every village, are cutlery and the making of silver beads in imitation of pearls.

The glass manufacture is of some interest. The glass is blown into large globes, and into these, while still hot, some amalgam is poured and the globes turned about, then receiving an internal coating of quick-silver. They are then broken up into small pieces, which are used as spangle ornaments both by women for their dress, and for the decoration of the walls of rooms.

The public buildings in this town are the police station, the school, and the Municipal Committee room. These three stand on the top of the old fort mound. Besides these in the suburbs there are a dispensary, a post office, and a large *sarai*. The *tahsil* building and a small road bungalow are situated about a quarter of a mile north, and the civil rest-house about a mile to the west. There

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is also a large *pakka* tank to the north of the city. It was built by Mathra Das Bania in the time of Emperor Muhammad Shah.

The population as ascertained at the enumerations of 1868, 1875, and 1881 is shown in the margin. The difficulty of comparing the results of these 3 enumerations noted in the case of Karnal exists also as regards Panipat, but the details in the margin throw some light on the matter. It would appear from information supplied by the Deputy Commissioner that Nurwala and Amirnagar were included in the census of 1868. The above figures show that they were excluded from that of 1881, as also was Bichpuri though being within municipal limits. The census of the town itself was confined to the area within the octroi barrier.

Limits of enumeration.	Year of Census.	Persons.	Males.	Females.
Whole town ..	1868	25,276	13,145	12,131
	1881	25,022	12,431	12,591
Municipal limits	1868	25,276		
	1875	24,500		
	1881	25,651		

Town or suburb.	Population.	
	1868.	1881.
Panipat town ..	25,276	25,022
Nurwala ..		821
Bichpuri ..		629
Amirnagar ..		100

The annual birth and death-rates per mille of population since 1881 are given below, the basis of calculation being in every case the figures of the most recent census:—

Detail.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	Average.
Birth rate.	40	37	41	44	39	37	40	33	37	31
Death rate.	37	33	21	42	31	28	41	29	25	32

The actual number of births and deaths registered during the last five years is shown in Table No. XLIV.

Town of Kaithal.

359. Kaithal is a municipal town and administrative head-quarters of a *tahsil* of the same name. It lies in latitude 29° 48′ 7″ north, longitude 76° 26′ 26″ east, and has a population of 14,754 souls, consisting of 8,597 Hindus, 171 Sikhs, 134 Jains, and 5,852 Musalmans. It is picturesquely situated on the bank of an extensive artificial lake or moat, called the Bidkiar tank, with numerous bathing places and flights of steps. A high wall, partly *pakka* and partly of mud, encloses the opposite side of the town. It has eight gateways, of which the Karnal gate to the east, the Keorak and Suraj Kund gates to the north, and Kassi gate to the west, are the principal ones. Most of the streets are well paved or metalled but are nearly all narrow and crooked. The town lands are very extensive and are divided into six *pattis*, each constituting a separate

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estate, but having the town as their common *abadi*. The principal buildings of antiquarian interest are as under :—

1.—Tomb of Shekh Shahab-ud-din Balkhi at the Siwan gate. This prince is said to have come from Balkh to Hindustan in 673 *Hijri*; he was slain in battle at Kaithal; his grandson built this tomb to his memory; the pillars and cupola are entirely of stone; the inscription is in Arabic on the cupola; the *tawiz* was removed from the tomb by one of the Bhais of Kaithal.

2. Masjid of Shekh Tayub—Built by himself in the time of the Emperor Akbar Jalal-ud-din; the cupola is coated with enamel.

3. Tomb of Shah Vilayat.—It was built in the reign of the Ghoris. Shah Vilayat's father built the tomb.

4. Tomb of Shah Kamal.—Fakir Shah Kamal is said to have come from Baghdad 250 years ago; the tomb was erected by his descendants; twice every year a fair is held at the spot; 24 acres of lands assessed at Rs. 15 have been released in perpetuity for the support of the shrine.

5. Asthan Anjni, mother of Hanuman.—This temple of Anjni, the mother of Hunuman, was lately repaired by the Hindus of Kaithal.

The town is clean and picturesque.—The ruins of the old fort, or residence, of the Kaithal family stand out prominently on the high bank of the Bidkiar tank, which seems to have been partly made by the excavation of bricks for building the town and fort, and partly formed to act as a moat for defence. The large house built by Bhai Ude Singh after the model of Sir David Ochterlony's house at Karnal also overlooks the lake.

This town is said to have been founded by the mythical hero Yudhishthira, and is connected by tradition with the monkeygod Hanuman. It bears in Sanskrit the name of Kapisthala, or the abode cf monkeys—a name which still applies. The town was renovated, and a fort built under Akbar. In 1767 it fell into the hands of the Sikh chieftain, Bhai Desu Singh, whose descendants, the Bhais of Kaithal ranked amongst the most important and powerful Cis-Satlej chiefs. Their territories lapsed to the British Government in 1843. For a few years Kaithal formed the head-quarters of a separate district; but in 1849 it was absorbed into the district of Thanesar, and transferred in 1862 to that of Karnal. (para. 72).

The municipality of Kaithal was first constituted in 1867. It was reconstituted in 1884 and is now a municipality of the 2nd Class. The committee consists of five nominated and nine elected members, from whom a president and vice-president are chosen by election. Table No. XLV shows the income of the municipality for the last few years. It is chiefly derived from

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octroi levied on the value of almost all goods brought within the municipal limits for the consumption or use of its inhabitants. A sleepy trade is carried on in gram, sal ammoniac, saltpetre, horned cattle, sheep, and country blankets. The refinement of saltpetre is brought to considerable perfection. Lacquer ornaments and toys are also made in some numbers both in Kaithal and in some of the surrounding villages. The public buildings are—a court-house, a *tahsil*, a police station, a dispensary, and a school. There are many large tanks round the city, of which the Bidkiar, the Shukrkund, and the Surajkund are the principal ones. The population as ascertained at the enumerations of 1868, 1875 and 1881 is shown in the margin.

Limits of enumeration.	Year of Census.	Persons.	Males.	Females.
Whole town ..	1868	14,910	7,456	7,434
	1881	14,754	7,302	7,452
Municipal limits	1868	14,848	..	..
	1875	15,799	..	..
	1881	14,754	..	..

The small falling off in population is amply accounted for by the drought which preceded the census, and by the fever epidemic of 1879.

The annual birth and death-rates per mille of population since 1881 are given below, the basis of calculation being in every case the figures of the most recent census:—

Detail.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	Average.
Birth-rate	21	20	26	29	28	29	29	39	42	29
Death-rate	22	18	20	38	55	25	43	25	27	30

The actual number of births and deaths registered during the last five years is shown in Table No. XLIV.

Siwan town.

360. Siwan is a small town, or rather a large village of 5,717 inhabitants, situated in the valley of the Sarusti, about 6 miles north of Kaithal. The town itself is an unpretentious collection of native houses without a wall or any building of importance. It has a school. Its lands include an enormous hollow in which rice is extensively grown with the aid of the flood-waters of the Sarusti. On the stream are the broken piers of an old bridge and the abandoned village site of Polar mazra where ancient bricks and Indo-Scythian coins are found. The population as ascertained at the enumerations of 1868 and 1881 is shown in the margin.

Year of Census.	Persons.	Males.	Females.
1868 ..	6,206	3,224	2,982
1881 ..	5,717	2,992	2,725

The decrease in population is attributed by the Deputy Commissioner to the years of drought which preceded the census of 1881, and to the fever epidemic of 1879.

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Pundri town.

361. Pundri is a small town in latitude 29° 45′ 30″ north, longitude 76° 56′ 15″ east. It has a population of 4,977 souls, consisting of 3,343 Hindus, 1,630 Musalmans, and 4 other. It is situated on the bank of an extensive tank known as the Pundrak tank, which gives its name to the town, and which nearly half surrounds it with bathing places and flights of steps. Pundri was in old day, one of the strongholds of the Pundri Rajputs (para. 134). The town is enclosed by a mud wall, and has four gates, of which the Pundrak gate is to the north, the Kaithal gate to the west, the Pai gate to the south, and the Habri gate to the east. Nearly all its streets are paved. There are many large private buildings, and a good *sarai* built by a banker. The public buildings are a school and police station. The Municipal Committee has been abolished. The bankers generally have their firms at Sehore cantonment. The Saiyids of Pundri are a well known, but decayed family. The chief man of the family is Amanullah, a Hakim, who is in receipt of an *inam* of Rs. 50. The population as ascertained at the enumerations of 1868, 1875, and 1881 is shown in the margin, but, as noted in the case of Karnal, the figures may not all relate to exactly the same areas.

Limits of enumeration.	Year of Census.	Persons.	Males.	Females.
Whole town ..	1868 1881	4,773 4,977	2,360 2,379	2,413 2,598
Municipal limits ..	1868 1875 1881	4,749 5,433 4,977		

Pehowa.

362. Pehowa has already been noticed in para. 37. It is an exceedingly unhealthy place, the great depression to the south of the town becoming a lake in the rains. It had a population of 4727 in 1855. The population as ascertained at the enumerations of 1868, 1875, and 1881 is shown below.

Limits of enumeration.	Year of Census.	Persons.	Males.	Females.
Whole town	1868 1881	3,690 3,408	2,026 1,935	1,664 1,473
Municipal limits	1868 1875 1881	3,675 3,569 3,408	... ...	... ...

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The Municipal Committee has been abolished. Pehowa is a noted place of pilgrimage. A large fair is held yearly for bathing in the Sarusti, the persons attending being usually from 20,000 to 25,000.

Tiraori.

363. Tiraori, though not classed as a town, is a place of some historical interest. Here in 1191 the invading army of Muhammad bin Sam was defeated by the united Hindu armies under Pirthvi Raj, the Chauhan King of Dehli (para. 39). Here Prince Azim, son of Aurangzeb (afterwards for a short time Azim Shah) was born. In memory of him the place was named Azimabad, and is still so called by many Musalmans. A wall round the town, a mosque, and a tank, said to have been the work of Aurangzeb, are still in existence. The old highway ran through Tiraori, and there is a well preserved specimen of the old royal *sarais* here. This building appears to have been used by the Sikhs as a fort. It is now the property of Nawab of Kunjpura and is unused and neglected. Tiraori is one of the stations on the new Dehli-Kalka Railway.

APPENDIX A.

Appendix A.

Growth of irrigation from W. J. Canal.

Growth of irrigation from the Western Jamna Canal, and extension of saline efflorescence and swamp.

The figures below show the irrigation from the *whole* of the Western Jamna Canal, from 1819 to 1840, no separate figures being available for the district. The Dehli branch was opened in 1820, but the small supply of water carried by it may be estimated from the fact that till 1826, *at least,* no bridges were needed, as a loaded village cart could be driven through it without inconvenience. In 1826 the Rohtak branch was opened as far as Gohana; but the irrigation from both these canals, though steadily increasing up to 1833, was still very limited, and in 1831 the small use made of the water was attributed to "the "uncertainty of the supply, the insufficiency of the outlets permitted for each village, and the high rates charged" *viz.,* annas 11-2 per acre.

Early Irrigation from Western Jamna Canal.

Year.	Amount of water-rate in rupees.	Area calculated at average rate of As. 11-2 per acre.	REMARKS.
1819-20* ...	876	1,255	Main line & Dehli branch opened.
1820-21 ...	14,646	20,988	
1821-22 ...	24,619	35,279	
1822-23 ...	21,458	30,749	
1823-24 ...	36,015	51,609	Drought.
1824-25 ...	26,647	38,185	Famine.
1825-26 ...	48,374	69,320	Famine.
1826-27 ...	33,975	48,686	Famine.
1827-28 ...	34,161	48,953	Rohtak branch opened.
1828-29 ...	52,953	75,882	
1829-30 ...	53,375	76,486	
1830-31 ...	57,700	82,684	
1831-32 ...	51,016	73,106	
1832-33 ...	65,805	94,299	
1833-34 ...	1,48,783	2,13,206	Famine.
1834-35 ...	1,14,065	1,63,455	
1835-36 ...	1,10,603	1,58,494	
1836-37 ...	1,53,177	2,19,503	
1837-38 ...	2,72,378	3,90,318	Drought.
1838-39 ..	1,89,645	2,71,761	
1839-40 ...	2,24,383	3,21,541	Rain scanty.
1840-41 ...	2,55,818	3,66,587	Contract system introduced.
1841-42 ...	2,63,069	3,76,978	
1842-43 ...	2,79,300	4,00,237	

The terrible famine of 1833-34 gave a new turn to the irrigation question. This famine fell with perhaps even greater severity upon the Bangar than upon the Khadir; for the canal failed, while the people of the latter had at least their wells, so

Appendix A.

Growth of irrigation.

long as the cattle had strength to work them. The distress, feebly described at page 26, paralysed for a whole year the agriculture of the tract. But this very distress was the means of securing at one bound an advance in prosperity which might otherwise have taken many years to attain. The canal presented at least a possibility of salvation; and its officers had no longer reason to complain that the water they proffered was not accepted. Irrigating villages enlarged and multiplied their channels; numerous other villages which had never before irrigated dug cuts for themselves, often many miles in length; and the area irrigated was limited only by the means of supply, instead of, as heretofore, by the demand. Strenuous efforts were made to increase that supply; and the irrigation of 1833-34 was 2¼ times that of 1832-33, while the construction of the Butana branch extended the water to a part of the tract which it had previously been unable to reach. The means of irrigation, once called into existence by the pressure of a water-famine, were still available when the urgent necessity had passed away; and the irrigation never again fell to its former level. The failure of the rains in 1836-37 raised it above the figures of 1832-33, and the continuance of the drought caused the irrigation in 1837-38 to rise to what Captain Baker, the Superintendent of Canals, declared in 1841 to be the maximum capacity of the channels as they then stood. But the supply was still uncertain, and apt to fail when most needed. The whole system of canals and their subsidiary channels had been called on to perform a task far in excess of that for which they had been designed; the call had been urgent, and the necessary adaptations had been made as best they could, and on the spur of the moment. The arrangements at the heads for supplying the water from the river were also very imperfect; and too often the canal broke down just when there was the greatest need for its services.

Year.	Acres.
1876	69,747
1877	85,172
1878	1,23,567
1879	97,334
1880	77,027
1881	62,280
1882	69,483
1883	87,035

The table on the next page shows the irrigation between 1865 and 1875. The figures refer only to the portion of the district settled by Mr. Ibbetson; but the canal irrigation excluded is insignificant in amount. Since that date the area charged with water-rate in the Karnal District has been as shown in the margin.

Defects of the canal system.

When the canal was re-opened, every facility was offered to such villages as would make use of the water. In most cases an old imperial water-cut still existed, which they were allowed to clear out and use; and when there was none, they simply made themselves a channel straight from the nearest point on the canal from which water would flow to their fields. As the demand for water has extended, certain large distributaries have been constructed, which have absorbed many of the early channels, while others have been deepened, enlarged, and extended. The main canals, too, have been deepened and their banks raised, till the water

Appendix A.

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		Year.	Cotton.	Sugar-cane.	Rice.	*Jowar.*	Wheat.	Gram.	Barley.	Barley and Gram.	Miscellaneous and fodder.	*Paleo* and *sailabi.*	Total area.
KARNAL BANGAR.	Canal areas.	1865	1,393	533	7,455	651	6,257	674	993	46	756	4,045	22,839
		1866	2,192	180	7,652	456	8,964	784	371	1,657	1,015	3,769	27,333
		1867	1,812	98	6,003	16	6,489	448	302	1,436	509	1,042	18,211
		1868	2,518	320	6,788	2,240	13,052	606	2,723	677	2,590	1,360	33,081
		1869	3,016	665	9,163	1,334	9,063	570	2,232	825	1,539	2,236	30,904
		1870	3,786	315	9,097	231	9,080	645	2,492	1,226	2,515	987	30,776
		1871	1,633	179	6,621	82	9,841	1,001	1,623	276	1,872	792	24,004
		1872	2,982	543	5,581	108	5,970	302	416	744	983	4,000	21,780
		1873	1,123	492	7,145	74	5,453	159	619	274	963	4,638	20,985
		1874	...	...	...	...	...	...	...	...	...	...	20,822
		1875	...	...	...	...	...	...	...	...	...	...	19,368
		Average ...	2,273	370	7,278	577	8,241	610	1,308	795	1,416	2,541	24,555
PANIPAT BANGAR.	Canal areas.	1865	7,899	4,296	10,449	4,658	22,217	1,201	494	4,714	2,099	5,446	63,473
		1866	12,171	2,048	12,390	1,450	28,573	921	439	4,254	3,495	6,154	71,916
		1867	11,467	2,853	8,325	448	20,339	1,531	436	3,118	2,893	1,757	53,174
		1868	9,441	5,185	7,367	7,796	36,339	2,021	2,665	2,256	6,587	948	80,683
		1869	11,121	7,129	8,048	7,773	27,834	2,563	1,726	3,166	6,148	1,842	77,431
		1870	13,296	5,564	8,768	2,175	26,653	1,902	1,746	2,263	6,253	1,273	70,023
		1871	12,474	4,322	7,225	666	26,413	1,636	1,682	3,768	6,096	868	65,450
		1872	9,519	5,234	9,390	388	11,628	353	488	1,869	4,044	4,512	47,449
		1873	4,790	5,355	8,651	466	9,024	224	407	811	4,407	5,177	39,378
		1874	...	...	...	...	...	...	...	...	...	...	48,189
		1875	...	...	...	...	...	...	...	...	...	...	41,669
		Average ...	10,242	4,665	8,957	2,869	23,224	1,373	1,121	2,913	4,669	3,108	59,894

Appendix A.

Growth of irrigation.

Defects of the canal system.

touches the crown of the arches in the bridges. Most of these extensions were made under pressure of urgent need, and therefore without interrupting the supply, and too hurriedly to admit of due consideration being given to them, or of the best possible scheme being selected. Thus, while the faulty alignment of the old canal and channels is still followed, their carrying capacity has been so increased that in most part the surface level of the water, and in some places the bed of the canal, is above the surrounding country, and the water is thus forced into the sub-soil by hydraulic pressure.* A great deal of the canal is, of course, in embankment; and in many of the secondary channels silt clearances, often dating from the time of the Mughals, have raised the banks to a height of 12 and 15 feet; and this system of embankments has been constructed with so little reference to the natural drainage that it intersects all the drainage lines of the tract, and throws back the surface water over the surrounding country. This is especially the case in Karnál Bangar, where the canal runs in embankment below the Nardak step in the Bángar and the Khádir bank in the Khádir, and holds up all the drainage which runs southwards from the highlands. The highland distributaries which cross the lowland to reach the villages on the crown of the slopes, act as so many dams above which huge swamps form, while the loops of the old channel in which the canal use to run, and which are cut off by it now that it has been straightened, act as breeding beds for crocodiles and malaria.

Excessive irrigation practised by the people.

But if the defects of the means of supply have given rise to evils, the pernicious system of irrigation pursued by the people, coupled with its rapid extension has increased those evils a hundred fold. While some 8 per cent. of the central canal tract is permanently under water, 40 per cent. of the whole area and 80 per cent. of the cultivated area is irrigated, much of it twice in the year, much of it for rice cultivation, and almost all of it every year without intermission. Now canal irrigation is not like well irrigation. When every drop of water used is represented by additional labour to man and beast, the greatest economy is exercised; not so when a stroke of the spade is sufficient to set flowing an unlimited supply. In the former case the cultivator divides his fields into small beds which are irrigated successively, and practically answer the purpose of terraces economis-

* The total irrigation from Western Jamna Canal at various periods is shown below:—

Years.	Acres.
1820	155
1825	38,185
1830	76,486
1840	321,541
1870	496,542
1878	507,974

The average depths of water in feet at Karnal bridge at various periods is as follows:—

Years.	Feet.
1827	4·81
1830	5·20
1835	6·93
1870	9·81
1875	10·10

And the bottom from which these depths are measured has been raised considerably during the period over which these figures extend.

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Growth of irrigation.

Excessive irrigation practised by the people.

ing the water, not only by reducing the depth needed, but also by confining the area of already watered ground over which the water has to pass. On the canal, on the other hand, if a field is six inches lower at one end than at the other, a seven-inch bank is made round it, and the whole field put under an average of four inches of water, in order to get one inch at the top; each spot in the field, after receiving its water, is still passed over by the water which goes to spots beyond it; and if a leak occurs in the channel, or if a bullock breaks down the side, the water is allowed to run to waste for hours before any trouble is taken to remedy the evil. The duty of the canal water for 1874-75 was 74 acres in the autumn, and 89 in the spring per cubic foot of supply. Supposing that the loss by evaporation and waste is counterbalanced by the fact that much of this land is watered in both seasons, this represents a supply of 62 inches in the year. A well working 13 hours a day for 150 days in the spring and 80 days in the autumn, and watering 15 acres, would have to supply at this rate 6,067 gallons per hour. Morever, the well water is itself drawn from the sub-soil supply, and all that is lost by evaporation during the process of irrigation is so much lost to that supply; while in canal irrigation, all that is *not* so lost, is so much *added* to that supply.

Resulting swamps

The result is that the whole country is water-logged by the canal water being forced into it from below, while the cultivator drenches it from above. And when the rain comes in tropical abundance, instead of finding a thirsty soil ready to drink up the greater part, it falls upon a country already saturated with water, and the whole volume is thrown into shallow drainage lines with an almost imperceptible slope. These again, being barred at intervals by high banks crossing them at right angles, silt up, and the water is thrown back and covers the country for miles. Thus, when the rainfall has been unusually heavy for several years in succession, there are hundreds of acres in which the autumn crop, if it can be sown at all, is almost or altogether drowned; while such little land as appears above the water soon enough to plough for the spring crop is so moist that the yield is barely worth the trouble of gathering. And there is a still larger area in which, after heavy rain, the water stands some inches deep for three or four days at a time, to the great injury of the crop. No means exist of carrying off the water, for, as the Chief Engineer reported in 1867, the level of the water in the canal can very seldom be reduced in the rainy season, just when the drainage of the swamps is most needed; as even if the supply at the heads be shut off, the quantity of water draining into the channel above Karnál is sufficient and sometimes more than sufficient, to fill the channel at and below that point.

Resulting saline efflorescence.

Nor is it only swampage that results from the causes above mentioned; for if it were, the higher land might by cultivated as the lower became unculturable. For countless ages the rain falling upon the soil has washed down with it more or less of its

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Resulting saline efflorescence.

saline constituents into the spring water below. That water now has been raised to within such a short distance of the surface that it can rise to it by capillary attraction, carrying with it salts which have been thus accumulated. As fast as it reaches the surface, wherever the cultivation or the shade of a thick tree does not interfere with radiation and evaporation, the fierce heat of an Indian sun concentrates the solution. Where the water is so near the surface, and the surface moisture so great that diffusion can take place, and the water thus made heavier can return by the way it came, no great harm is done. But over most of the area this is not the case, and the water evaporating leaves the salt deposited; and this process, repeated year after year, eventually covers the soil with a flocculent layer of alkaline salts, lying like fresh-fallen snow, often three or four inches thick. The first rain that falls is not heavy enough to reach the main drainages, and sinking in *in situ* carries with it the salts; thus preserving them by a sort of occlusion from the mechanical action of heavy rain, to re-appear when the next sunny day restores the process of evaporation.*

The salts lie thick round the edges of the cultivation, and notwithstanding the bank made to keep them out, are carried over the boundary by the wind and rain and deposited in the hollows of the out-lying fields. When once cultivation is thus destroyed, the capillary process immediately begins, and thus the evil is gradually eating its way from outside into the still fertile fields every inch gained being made the stepping-stone for further inroads. The saline water and such grass as is able to spring up in the salt-impregnated land give the cattle diarrhœa and glandular affections, enfeeble, and eventually kill them; while the large area which is each year covered with water and aquatic plants in the rainy season, and dried up by the sun during the remainder of the year, exhales from its putrifying vegetation a malaria which poisons the blood of the villagers, renders them impotent, and kills them by fever and spleen disease.

Effects upon health and prosperity.

The epidemic of 1841-43, which assumed especial virulence in the canal tract, and caused the abandonment of Karnal as a cantonment, led to the appointment of a Committee by the Supreme Government to investigate the matter. Their report was published at Agra in 1847. In 1867 Surgeon-Major Adam Taylor was appointed to make a further inquiry: and his report was published as Selection No. VI of 1870 from Records of Government Punjab. Some of the figures of both reports are summarised on the next page.

Dr. Taylor shows that 60 to 80 per cent. of the inhabitants in many of the Bangar villages were suffering from enlarged

* An immense amount of information and discussion on the subject of *reh*, its origin, formation, effects, and cure, will be found in the report of the Aligarh Reh Committee of 1878, in Selections No. XLII 1864 from Government of India correspondence, P. W. D., in the printed correspondence with Board of Revenue, N. W. P., No. 231 of 21st October 1874, and Government, N. W. P., Revenue Department, Index Nos. 61-63 of May 1877.

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spleen and yearly attacks of fever. He speaks of the "languor and depression of manner, and stunted and shrivelled forms of the inhabitants of the villages in close proximity" to the swamps; and of the absence of "the strengh to repair damages or to preserve comfort." The heavy rains of 1871-76 rendered the sanitary condition of the canal villages worse than ever.

Statistics of Disease on Western Jamna Canal.

Locality.	Distance from Canal.	Depth of water below surface.	Percentage of large spleens.	Percentage suffering from fever in 1844.	1845.	1864.
REPORT OF 1847.						
WESTERN JAMNA CANAL.						
Dehli Branch. ...	Within half a mile ...	11	58	51	45	41
	More than a mile ...	18	49	51	49	40
Rohtak Branch ...	Within half a mile...	28	44	47	38	27
	More than a mile ...	48	29	34	34	27
Butána Branch ...	More than half a mile	102	16	41	36	22
NON-CANAL VILLAGES.						
Dehli territory ...	...	88	11	32	28	11
High Doáb ...	...	24	8	37	31	20
REPORT OF 1867.						
Dehli Branch ...	Within half a mile...	6	61	33	20	63
	More than a mile ...	11	44	40	38	66
Rohtak Branch ...	Within half a mile...	5	41	36	36	51
	More than a mile ...	7	47	44	54	68
Butána Branch ...	More than half a mile.	45	7	33	28	32
Between the canals	...	8	47	34	41	65

In 1856 the people of many of the worst villages abandoned their homes and fled to Jindh; and Mr. Sherer was deputed to inspect the tract. His admirable report was submitted in 1857, and is printed as part of Selections No. XLII (1864) from Govenment of India correspondence, P. W. D., pages 4-15. He showed that the water-level had been raised by the canal from some 60 feet to, in many places, two or three feet from the surface; that the fertility of the soil had been very generally diminished; and that the evil had not nearly reached its limits, but must necessarily continue to spread almost indefinitely.

From a sanitary point of view he found a state of things existing "very much worse than that described by the Committee of 1847." He speaks of the miserable disease engendered by the tainted water and malarious exhalations of the soil; of

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the spectacle of sick women and diseased children crouching among the ruins of their houses (for in many cases the rafters had been sold), of haggard cultivators wading in the swamps, and watching their sickly crops, or attempting to pasture their bony cattle on the unwholesome grass.

In the beginning of 1877 Mr. Ibbetson, reporting on the assessment of the canal tract, wrote as follows:—

"The villages of the tract may be described under three heads. Those which, well removed above the influence of the *reh*, reap the benefits of the canal without being subject to its injuries, are eminently prosperous.

"Those villages, which, though out of the lines of drainage and swamp, are so low that their pastures are covered by *reh*, are far less prosperous. Their cultivation has decreased, and must decrease still further; the fertility of what remains has diminished; expansion is impossible; what little grass there is for the cattle weakens and kills them, and the water is bad for both man and beast. Where the village is large and well off, they have saved the mass of their cultivation from any very great deterioration, and the inroads of *reh* are chiefly confined to the edges. But where the community is poor, the whole cultivation has suffered, and the *reh* advances with accelerating impetus. It is, then, most important to assess lightly this class of villages, so that they may not be hampered in their struggle with the evil.

"As for the villages which lie in the drainage lines, or have low land near the canal, their state is pitiful indeed. Their early cultivation was, as is the case throughout the district, in the lowest parts of their area; and while the higher lands were becoming covered with *reh*, the stiff soil of the fields helped to preserve the lower from injury. But as the water-level rose, and swamps and soakage began to extend, they found their cultivation under water, while, turning too late to their high lands, they perceived that they had become barren; and now they live a semi-amphibious life, their houses crumbling with the damp, crocodiles in their village ponds, the water in the wells so near that, as they say, they can 'draw water without a string,' their sickly feeble cattle obliged to leave the village during the rains, and they themselves suffering from all complications of malarious disease with an unbroken regularity. Year by year they sow rice with the certainty that only an exceptionally dry season can save it from being drowned, and that much of it must even then be injured by too much water; year by year they watch the fields as they dry up, and rapidly passing a plough through the tenacious mud, sow their wheat and barley in the open furrows till the very last moment when there is hope of their germinating, or even sow the seed on the unbroken mud, and plough over it when the ground is a little drier; and this in the knowledge that some of it will fail, that heavy rain will drown more of it, and that most of what does come up will barely repay the labour spent on it. Much of their land is sour and cold from being so permanently saturated with water that, though not under water, it cannot be cultivated; some of it perhaps is separated from their village by the canal, the nearest bridge being some miles off, and it being forbidden to take cattle to it along the bank. In a year of drought these villages no doubt reap

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splendid crops, but years of drought are fortunately the exception, and I think that the very largest allowance should be made for the circumstance of estates so situated.

"My experience of the tract was in 1877 limited to a probably exceptional series of seasons of full excessive rainfall. Since then I have seen them during a series of, I hope, exceptionally scanty rain, and I think I exaggerated the *average* condition of the swampy villages. It would be difficult to exaggerate it as it is in really wet years."

General Strachey did not speak one whit too strongly, when he said in 1867 :—

"The portion of the canal near Karnál is a disgrace to our administration, and has been for years past. It creates most pestilential swamps which must be got rid of, unless we are content to perpetuate this abominable nuisance, which has been talked about for the last 25 years, during which period no serious attempt has been made to abate it. For my own part, I distinctly reject all share in any counsel which tends to delay in meeting this most crying evil. I most fully admit the great importance of doing what has to be done with the most scrupulous regard to economy, and I am ready to sacrifice all thought of elegance or congruity for the purpose of avoiding any considerable outlay, which is really not needed to secure efficiency. But it is impossble for me to affirm, with too great positiveness, the moral obligation which rests on our Government to put an end, with all possible speed, to the discreditable condition of the large tracts of land along the Western Jamna Canal which are converted into swamps of the most pestilential nature, not only destructive to the health and life of the population, but occupying in a manner far worse than useless some of what might be the very best lands. It will be necessary to do something, and what is necessary should not be delayed till other works, which have no relation to this part of the scheme, are completed."

The new canal is now nearly complete; the re-alignment of the distributaries has already done much good, and the completion of the drainage scheme will doubtless go far to cure the evil of swamps. But the efflorescence will not be so easily got rid of; and it will probably be many years before this scourge is very materially decreased.

The above was written by Mr. Ibbetson eight or nine years ago. The following note by Mr. Higham, Superintending Engineer, Cis-Sutlej Circle, shows what has been done to remedy the evils to which Mr. Ibbetson referred.

The new main line of the Western Jamna Canal, extending from Indri to Munak, was completed in 1885, and in August of that year the old canal between Indri and Rei was finally closed, and relegated to its proper position as a drainage line. The re-alignment of the distributaries has been since completed, and the obstructions to the free passage of the drainage caused by the old water-courses have been finally removed. Lastly the Karnál District has been provided with three main or arterial drains, two of which have been in full working order since 1887,

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though the third is not yet fully developed. The first of these, known as Main Drain No. I, comprises a length of the old canal from Budha Khera to Kharakali. The outfall channel leaves the old canal opposite Karnál in a north-easterly direction falling into the Budha Khera Escape of the Western Jamna Canal at Kutel, and thence passing onwards into the Jamna. Three minor tributary drains discharging into this main drain unwater the Karnál City and neighbourhood and the Bazida Jhil, and completes the drainage of the great bight of the Khadir, lying between the Bángar edge and the old canal, the whole condition of which has very materially improved since its construction. Main drain No. II comprises a further length of the old canal from Kharakali to Rei, which drains the adjacent Bangar Villages. From Kutana the drain is connected by an artificial cut with the old Rei Escape, which has been enlarged and remodelled as far as Babail, four miles to the east of the Grand Trunk Road. From Babail, the new drain leaves the line of the Rei Escape by a sharp turn to the south and eventually discharges into an old nallah below Chajpur, and so on into the Jamna at Khojkipur, 12 miles below Pánipat. This drain passes into the Khadir at Mahomedpur, and receives the waters of the Ganda Nallah, or natural main line of the Khadir immediately above the point of crossing the Grand Trunk Road. Several other inlets are provided along its course both in the Bángar and Khadir for the drainage of adjacent lands, while at its lower end the spoil on the left or eastern bank efficiently protects several villages from the overspill of the Jamna.

The third arterial drain, known as Main drain No. III, or the Nai Nallah, will drain the lands to the west of the new main line and New Hansi Branch until it passes under the latter at Antu, a short distance above Sufidan, in Jind territory. Below this point it unwaters the tract lying between the New Dehli Branch and the old Rohtak Canal, and constitutes a natural drainage line, which passes into the Rohtak District at Chichiana (when it is locally known as the Loti Nallah) running in a southerly direction through Gohána and to the west of Rohtak, with an ultimate outfall into the lakes north of Jhajjar, which communicate with the great Najafgarh Jhil in the South of the Dehli District. Until recently however the outfall below Gohána was completely closed, and the efficiency of the Nai Nallah as a drainage line was limited by the capacity of the Rohta Jhil above that town. By the completion of Main Drain No. VIII below Gohána an efficient outfall has now been provided and the clearance of the upper part of the nallah and of a few subsidiary drainages alone remains to complete this third and important main drain, and with it the drainage scheme for the canal irrigated portions of the Karnál District.

STATISTICAL TABLES

APPENDED TO THE

GAZETTEER

OF THE

KARNAL DISTRICT.

(INDEX ON REVERSE).

STATISTICAL TABLES.

Table No. II, showing DEVELOPMENT.

1	2	3	4	5	6	7
DETAILS.	1853-54.	1858-59.	1863-64.	1868-69.	1873-74.	1878-79.
Population	...	...	...	6,17,997	...	6,22,621
Cultivated acres	...	...	...	6,45,120	6,71,896	6,80,319
Irrigated acres	...	...	...	2,42,845	2,43,951	2,49,160
Ditto (from Government works).	...	...	...	1,08,460	1,03,227	1,03,227
Assessed Land Revenue, rupees.	...	...	...	8,68,580	8,73,916	8,83,965
Revenue from land, rupees ...	...	...	...	6,53,799	6,70,034	5,97,247
Gross revenue, rupees ...	...	...	...	7,14,779	7,81,651	7,92,269
Number of kine	...	...	...	1,94,458	1,93,240	1,93,653
" sheep and goats ...	...	...	...	70,072	65,242	61,862
" camels	...	...	...	901	756	702
Miles of metalled roads ...	...	...	...	} 467	{ 58	60
" unmetalled roads ...	...	...	...		154	535
" Railways	...	...	...	...	...	...
Police staff	...	...	492	655	544	621
Prisoners convicted	...	...	1,565	1,612	1,573	1,717
Civil suits,—number	...	1,859	1,854	2,050	3,695	3,592
" —value in rupees ...	...	2,07,172	2,61,705	1,60,181	2,91,649	2,66,775
Municipalities,—number ...	...	...	...	...	5	5
" —income in rupees.	...	...	...	29,886	32,742	41,648
Dispensaries,—number of ...	...	...	...	4	4	6
" —patients ...	...	...	...	18,113	27,774	36,646
Schools,—number of	...	...	87	74	54	47
" —scholars	...	...	1,817	2,146	1,906	2,651

NOTE.—These figures are taken from Tables Nos. I, III, VIII, XI, XV, XXI, XLI, XLV, L, LIX, and LXI of the Administration Report.

The area of the district has been enlarged since 1881. The population of the district as now constituted was 6,45,219 in 1881.

Table No. III, showing RAINFALL

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	ANNUAL RAINFALL IN TENTHS OF AN INCH.																							
Rain-gauge station.	1866-67.	1867-68.	1868-69.	1869-70.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	Average.
Karnál	168	330	163	190	321	331	330	424	431	354	249	240	243	236	319	250	250	175	448	352	279	463	369	301
Páuipat	187	297	145	161	268	836	292	305	314	243	281	169	242	242	280	222	215	138	287	257	200	327	283	244
Kaithal	170	228	77	145	147	205	347	235	173	272	128	103	224	110	293	176	232	70	240	163	75	232	256	187

NOTE.—These figures are taken from the weekly rainfall statements published in the *Punjab Gazette*.

Table No. III A, showing RAINFALL at HEAD-QUARTERS.

1	2	3	1	2	3
	ANNUAL AVERAGES.			ANNUAL AVERAGES.	
MONTHS.	No. of rainy days in each month—1867 to 1876.	Rainfall in tenths of an inch in each month—1867 to 1881.	MONTHS.	No. of rainy days in each month—1867 to 1876.	Rainfall in tenths of an inch in each month—1867 to 1881.
January ...	2	11	September ...	6	37
February ...	2	13	October ...	1	3
March ...	3	12	November ...	...	...
April ...	1	6	December ...	1	5
May ...	3	13	1st October to 1st January.	2	9
June ...	5	42			
July ...	11	92	1st January to 1st April	7	36
August ...	8	55	1st April to 1st October,	33	245
			Whole year ...	42	289

NOTE.—These figures are taken from Table No. XXIV of the Revenue Report, and from page 34 of the Famine Report.

Table No. III B, showing RAINFALL at TAHSIL STATIONS.

1	2	3	4	5
	AVERAGE FALL IN TENTHS OF AN INCH, FROM 1873-74 TO 1877-78.			
TAHSIL STATIONS.	1st October to 1st January.	1st January to 1st April.	1st April to 1st October.	Whole year.
Pánipat	5	23	282	310
Kaithal	2	21	212	235

NOTE.—These figures are taken from pages 36, 37 of the Famine Report.

Table No. V, showing the DISTRIBUTION of POPULATION.

1	2	3	4	5
	District.	Tahsil Karnal.	Tahsil Panipat.	Tahsil Kaithal.
Total square miles ..	2,396	832	458	1,106
Cultivated square miles	1,062	378	284	400
Culturable square miles	892	273	81	538
Square miles under crops (average 1877 to 1881)	914	318	229	367
Total population	622,621	231,094	186,793	204,734
Urban population	78,328	27,858	25,022	25,448
Rural population	544,293	203,236	161,771	179,286
Total population per square mile	260	278	408	185
Rural population per square mile	227	245	353	162
Towns & villages. Over 10,000 souls	3	1	1	1
Towns & villages. 5,000 to 10,000 „	1	..	..	1
Towns & villages. 3,000 to 5,000 „	16	3	5	8
Towns & villages. 2,000 to 3,000 „	35	10	15	10
Towns & villages. 1,000 to 2,000 „	117	45	45	27
Towns & villages. 500 to 1,000 „	182	79	40	63
Towns & villages. Under 500 „	509	221	60	228
Towns & villages. Total	863	359	166	338
Occupied houses .. Towns ..	10,441	4,558	2,952	2,931
Occupied houses .. Villages	57,830	18,927	23,763	15,140
Unoccupied houses .. Towns ..	5,226	1,671	1,687	1,868
Unoccupied houses .. Villages	17,945	5,281	8,014	4,650
Resident families .. Towns ..	21,250	7,731	6,216	7,303
Resident families .. Villages	97,358	45,267	36,190	15,901

NOTE—These figures are taken from Tables Nos. I and XVIII of the Census of 1881, except the cultivated, culturable and crop areas, which are taken from Tables Nos. I and XLIV of the Administration Report.
They refer to the district as constituted in 1881.

Table No. VI, showing MIGRATION.

1	2	3	4	5	6	7	8
			Males per 1,000 of both sexes.		Distribution of Immigrants by Tahsils.		
Districts.	Immigrants.	Emigrants.	Immigrants.	Emigrants.	Karnál.	Pánipat.	Kaithal.
Delhi	8,672	7,406	258	313	981	7,284	407
Hissar	4,805	2,547	316	388	621	1,062	3,122
Rohtak	10,611	7,845	275	314	1,352	7,299	1,960
Umballa	16,353	15,532	349	367	10,649	387	5,317
Native States	26,334	26,048	308	319	1,611	2,838	21,885
N.-W. P. and Oudh	25,658	24,000	405	458	13,956	10,029	1,673
Rajputana	2,118	...	584	...	689	946	483

NOTE.—These figures are taken from Table No. XI of the Census of 1881, and refer to the district as constituted in that year.

Table No. VII, showing RELIGION and SEX.

1	2	3	4	5	6	7	8
	District.			Tahsils.			Villages.
	Persons.	Males.	Females.	Karnál.	Pánipat.	Kaithal.	
Persons	622,621	...	...	231,094	186,793	204,734	544,293
Males	...	336,171	...	124,880	100,301	110,990	296,172
Females	...	...	286,450	106,214	86,492	93,744	248,121
Hindus	453,662	246,649	207,013	161,577	137,803	154,282	413,747
Sikhs	8,036	4,504	3,532	2,594	213	5,229	7,740
Jains	4,655	2,489	2,166	1,129	2,858	668	3,538
Buddhists...	...	...	...	...	...	...	...
Zoroastrians	...	...	...	...	...	...	...
Musalmans	156,183	82,485	73,698	65,747	45,908	44,528	119,230
Christians	85	44	41	47	13	25	38
Others and unspecified ...	...	...	...	...	...	...	...
European & Eurasian Christians...	37	20	17	24	11	2	...
Sunnis	153,530	81,176	72,354	64,288	45,360	43,882	117,325
Shiahs	2,129	996	1,133	1,242	526	361	1,438
Wahabis	...	...	...	...	...	...	...

NOTE.—These figures are taken from Tables Nos. III, III A, III B of the Census of 1881, and refer to the districts as constituted in that year.

Table No. VIII, showing LANGUAGES.

1	2	3	4	5
		Distribution by Tahsils.		
Language.	District.	Karnál.	Pánipat.	Kaithal.
Hindustani	595,714	230,552	186,257	178,905
Bagri	161	62	38	61
Panjábi	26,580	428	412	25,740
Pashtu	27	5	9	13
Pahári	3	3	...	...
Kashmiri	15	6	9	...
Persian	4	2	1	1
English	38	25	11	2

NOTE.—These figures are taken from Table No. IX of the Census for 1881, and refer to the district as constituted in that year.

Table No. IX, showing MAJOR CASTES and TRIBES.

1	2	3	4	5	6	7	8	9	10
Serial No. in Census Table No. VIII A.	Caste or Tribe.	Total Numbers.			Males, by religion.				Proportion per mille of population.
		Persons.	Males.	Females.	Hindu.	Sikh.	Jain.	Musalman	
	Total population ..	622,621	336,171	286,450	246,649	4,504	2,489	82,485	1,000
6	Pathan ..	5,898	3,108	2,790	..	..	..	3,108	9
1	Jat ..	95,108	52,384	42,724	47,389	3,507	..	1,488	153
2	Rajput ..	53,260	29,062	24,198	7,129	32	..	21,895	85
55	Ror ..	34,094	18,485	15,609	18,441	44	..	..	55
86	Taga ..	4,162	2,214	1,948	1,144	..	..	1,070	7
8	Gujar ..	21,898	12,371	9,527	9,206	..	..	3,165	35
45	Mali ..	10,124	5,461	4,663	5,362	97	..	2	16
7	Arain ..	7,118	3,836	3,282	28	2	..	3,806	11
33	Kamboh ..	9,082	5,011	4,071	4,164	48	..	799	15
17	Shekh ..	13,789	7,180	6,609	..	..	..	7,179	22
3	Brahman ..	55,168	29,610	25,558	29,534	76	..	..	89
24	Saiyad ..	4,309	2,170	2,139	..	..	..	2,169	7
53	Bairagi ..	4,629	2,642	1,987	2,642	..	..	..	7
21	Nai ..	10,307	5,547	4,760	4,501	35	..	1,011	17
25	Mirasi ..	2,974	1,469	1,505	2	..	..	1,467	5
40	Jogi ..	9,267	4,813	4,454	3,467	2	..	1,344	15
14	Banya ..	40,599	21,512	19,087	19,022	1	2,489	..	65
4	Chuhra ..	31,288	16,539	14,749	16,415	67	..	57	50
43	Dhanak ..	3,369	1,770	1,599	1,770	..	..	..	5
5	Chamar ..	54,067	28,916	25,151	28,746	119	..	46	87
9	Julaha ..	9,090	4,867	4,223	1,305	53	..	3,509	15
73	Gadaria ..	3,725	1,938	1,787	1,938	..	..	..	6
15	Jhinwar ..	31,200	16,984	14,216	15,836	69	..	1,079	50
22	Lohar ..	9,190	4,963	4,227	2,195	42	..	2,726	15
11	Tarkhan ..	13,787	7,238	6,549	5,323	145	..	1,770	22
13	Kumhar ..	14,712	8,005	6,707	6,937	74	..	994	24
36	Chhimba ..	4,856	2,630	2,226	505	3	..	2,122	8
23	Teli ..	9,777	5,239	4,538	19	..	..	5,220	16
38	Qassab ..	4,587	2,367	2,220	..	..	..	2,367	7
30	Sunar ..	4,021	2,157	1,864	1,930	19	..	208	7

Note.—These figures are taken from Table No. VIII A of the Census of 1881, and refer to the district as constituted in that year.

Table No. IX A, showing MINOR CASTES and TRIBES.

1	2	3	4	5
Serial No. in Census Table No. VIII A.	Caste or Tribe.	Persons.	Males.	Females.
16	Khatri	1,170	695	475
27	Ahir	1,007	597	410
32	Dhobi	2,748	1,447	1,301
35	Faqir, miscellaneous and unspecified	2,033	1,183	850
37	Mughal	597	313	284
42	Mallah	1,277	631	646
46	Dogar	1,960	1,059	901
47	Maniar	789	427	362
48	Bharai	1,202	642	560
56	Kalal	878	441	437
61	Darzi	1,238	674	564
62	Bhat	1,399	708	691
63	Madari	2,640	1,384	1,256
72	Sansi	1,309	693	616
76	Nungar	887	496	391
81	Gaddi	2,729	1,494	1,235
82	Rawat	1,025	525	500
83	Penja	756	395	361
85	Od	629	355	274
87	Khatik	1,093	570	523
90	Kayath	737	401	336
93	Raj	583	279	304
94	Banjara	617	356	261
98	Nat	815	394	421
99	Kori	817	456	361
102	Gusain	1,723	1,153	570
105	Lodha	1,659	915	744
108	Bharbhunja	1,257	693	564
110	Rangrez	1,662	863	799
111	Benawa	1,515	789	726
122	Rahbari	1,125	615	510
143	Jalali	609	333	276

Note.—These figures are taken from Table No. VIII A of the Census of 1881, and refer to the district as constituted in that year.

Table No. X, showing CIVIL CONDITION.

1	2	3	4	5	6	7	8
	DETAILS.	SINGLE.		MARRIED.		WIDOWED.	
		Males.	Females.	Males.	Females.	Males.	Females.
Actual figures for religions.	All religions	156,912	87,375	153,146	150,572	26,113	48,503
	Hindus	114,144	61,931	112,473	110,469	20,032	34,613
	Sikhs	2,292	1,145	1,912	1,833	300	554
	Jains	1,059	635	1,157	1,126	273	405
	Buddhists	...	...	...	...	...	...
	Musalmans	39,394	23,641	37,585	37,128	5,506	12,929
	Christians...	23	23	19	16	2	2
Distribution of every 10,000 souls of each age.	All ages	4,668	3,050	4,555	5,256	777	1,693
	0—10	9,858	9,644	139	351	3	5
	10—15	8,018	5,289	1,934	4,626	47	85
	15—20	5,373	933	4,440	8,785	186	282
	20—25	3,135	106	6,457	9,314	408	580
	25—30	1,843	47	7,564	9,046	593	907
	30—40	1,115	32	7,956	8,041	929	1,927
	40—50	754	26	7,536	5,992	1,709	3,982
	50—60	647	32	6,722	3,954	2,631	6,014
	Over 60	540	33	5,379	1,769	4,081	8,197

NOTE.—These figures are taken from Table No. VI of the Census of 1881, and refer to the district as constituted in that year.

Table XI, showing BIRTHS and DEATHS.

1	2	3	4	5	6	7	8	9	10
Years.	TOTAL BIRTHS REGISTERED.			TOTAL DEATHS REGISTERED.			TOTAL DEATHS FROM		
	Males.	Females.	Persons.	Males.	Females.	Persons.	Cholera.	Small-pox.	Fever.
1877 ...	...	...	...	7,275	5,566	12,841	...	984	6,516
1878 ...	...	...	...	15,111	11,818	26,929	...	4,006	16,492
1879 ...	...	...	...	19,908	16,314	36,222	1,606	2,369	26,047
1880 ...	10,484	8,583	19,067	13,172	10,047	23,219	1	459	17,017
1881 ...	14,251	11,985	26,236	12,203	9,788	21,991	125	338	14,699
1882 ...	13,590	11,934	25,524	10,903	8,856	19,759	3	643	12,423
1883 ...	14,574	13,229	27,803	10,105	8,309	18,414	...	2,495	9,977
1884 ...	14,754	12,997	27,751	18,049	16,641	34,690	1	2,615	25,145
1885 ...	12,010	10,335	22,345	13,220	11,172	24,392	182	272	18,404
1886 ...	14,501	12,613	27,114	11,464	9,714	21,178	...	267	15,435
1887 ...	13,694	11,810	25,504	17,033	14,854	31,887	681	672	23,087
1888 ...	12,629	10,931	23,560	11,711	9,603	21,314	...	798	14,942
Average ...	13,387	11,601	24,989	13,346	11,056	24,403	216	1,326	15,849

Table No. XI A, showing MONTHLY DEATHS from all CAUSES.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
MONTH.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	Average.
January	962	1,157	2,698	2,983	1,718	1,784	1,369	1,234	2,076	1,678	1,654	2,205	1,793
February	843	1,136	2,019	1,888	1,900	1,297	1,385	1,555	1,327	1,526	1,478	1,727	1,556
March	1,056	1,402	1,627	1,614	1,665	1,619	1,733	1,385	1,475	1,580	1,770	1,471	1,533
April	919	1,781	1,729	1,630	1,958	1,241	1,429	1,500	1,411	1,670	2,323	1,531	1,593
May	1,115	2,842	3,897	1,655	1,467	1,824	1,617	2,055	1,942	1,717	2,410	1,951	2,041
June	1,456	2,133	2,259	1,945	1,525	2,113	2,164	1,806	1,908	1,709	2,184	2,168	1,947
July	1,250	1,430	1,180	1,364	1,431	1,331	1,598	1,506	1,608	1,453	1,819	1,598	1,464
August	1,199	1,543	3,055	1,632	1,280	1,623	1,704	2,325	1,808	1,717	2,243	1,377	1,792
September	839	1,621	4,451	2,095	2,370	2,015	1,145	3,987	2,589	1,780	3,952	1,769	2,384
October	880	3,457	6,062	2,195	1,992	1,382	1,228	8,620	3,141	1,968	5,464	2,041	3,202
November	1,249	5,559	3,648	1,984	2,140	1,585	1,587	5,366	2,793	2,199	3,689	1,761	2,796
December...	1,073	2,868	3,597	2,234	2,545	1,945	1,455	3,351	2,314	2,181	2,901	1,715	2,346
Total ...	12,841	26,929	36,222	23,219	21,991	19,759	18,414	34,690	24,392	21,178	31,887	21,314	24,403

NOTE.—These figures are taken from Table No. III of the Sanitary Report.

Table No. XI B, showing MONTHLY DEATHS from FEVER.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
MONTH.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	Average.
January	548	525	2,019	2,431	1,138	1,223	865	615	1,638	1,318	1,247	1,729	1,277
February	510	472	1,294	1,416	1,291	812	813	793	1,040	1,190	1,094	1,325	1,004
March	574	558	970	1,205	1,126	1,044	1,035	765	1,116	1,251	1,305	1,087	1,003
April	495	713	996	1,264	1,378	791	792	868	1,089	1,313	1,669	1,162	1,044
May	572	952	1,901	1,312	1,008	1,206	816	1,116	1,414	1,252	1,718	1,378	1,220
June	697	850	1,274	1,427	1,043	1,318	1,041	950	1,441	1,187	1,479	1,497	1,192
July	583	652	701	937	856	752	690	812	1,162	986	1,074	1,008	851
August	592	878	2,199	1,061	642	915	854	1,222	1,220	1,096	1,264	848	1,065
September	365	1,033	3,506	1,417	1,446	1,137	585	3.029	1,814	1,172	2,539	1,140	1,598
October	423	2,782	5,169	1,576	1,332	881	685	7,401	2,392	1,394	4,281	1,400	2,476
November	641	4,792	3,070	1,395	1,550	1,050	939	4,719	2,223	1,620	3,066	1,233	2,192
December	516	2,285	2,948	1,576	1,889	1,294	862	2,855	1,855	1,656	2,351	1,135	1,768
Total ...	6,516	16,492	26,047	17,017	14,699	12,423	9,977	25,145	18,404	15,435	23,087	14,942	15,849

NOTE.—These figures are taken from Table No. IX of the Sanitary Report.

Table No. XII, showing INFIRMITIES.

1	2	3	4	5	6	7	8	9
	INSANE.		BLIND.		DEAF AND DUMB.		LEPERS.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
All religions .. Total ..	159	93	2,238	2,323	181	79	167	24
All religions .. Villages ..	129	79	1,941	1,954	157	68	155	18
Hindus	103	70	1,669	1,711	133	61	116	16
Sikhs	2	1	30	25	..	..	2	..
Musalmans	54	22	535	584	47	18	48	8

NOTE.—These figures are taken from Tables Nos. XIV to XVII of the Census of 1881, and refer to the district as constituted in that year.

Table No. XIII, showing EDUCATION.

1	2	3	4	5
	MALES.		FEMALES.	
	Under instruction.	Can read and write.	Under instruction.	Can read and write.
All religions Total ..	2,715	13,226	63	90
All religions Villages	1,434	9,535	7	37
Hindus	1,777	10,527	6	34
Sikhs	22	135	..	3
Jains	101	1,020	1	2
Buddhists	..	..	..	..
Musalmans ..	811	1,515	49	32
Christians ..	4	29	7	19
Tahsil Karnal ..	1,141	4,515	43	47
" Panipat ..	704	4,426	14	18
" Kaithal ..	870	4,285	6	25

NOTE.—These figures are taken from Table No. XIII of the Census of 1881, and refer to the district as constituted in that year.

Table No. XIV, showing detail of SURVEYED and ASSESSED AREA.

1	2	3	4	5	6	7	8	9	10	11	12
	CULTIVATED.				UNCULTIVATED.						
	Irrigated.										
	By Government works.	By private individuals.	Unirrigated.	Total cultivated.	Grazing lands.	Culturable.	Unculturable.	Total uncultivated.	Total area assessed.	Gross assessment.	Unappropriated culturable waste, the property of Govt.
1868-69	108,460	134,385	402,275	645,120	3,093	578,027	279,680	860,800	1,505,920	868,580	3,093
1873-74	103,227	140,724	427,945	671,896	6,375	551,418	275,482	833,275	1,505,171	873,916	527
1878-79	103,227	145,933	431,159	680,319	8,163	562,558	282,950	853,671	1,533,990	883,965	527
Tahsil details for 1878-79—											
Tahsil Karnal ..	23,850	45,605	172,415	241,870	..	174,683	112,629	287,312	529,182	324,622	..
" Panipat ..	71,712	54,287	56,210	182,209	..	51,810	59,225	111,035	293,244	380,973	..
" Kaithal ..	7,665	46,041	202,534	256,240	8,163	336,065	111,096	455,324	711,564	178,370	527
1888-89 ..	45,736	64,439	706,484	816,659	..	587,557	245,498	833,055	1,650,314	843,578	8,518
Tahsil details for 1888-89—											
Tahsil Karnal ..	12,116	21,864	225,895	259,875	..	193,402	82,474	275,876	505,751	285,651	1,600
" Panipat ..	26,578	30,551	119,342	176,471	..	53,713	65,964	119,677	296,148	311,349	..
" Kaithal ..	7,042	12,024	361,247	380,313	..	340,442	97,060	437,502	817,815	246,576	6,918

NOTE.—The figures for 1888-89 are taken from Statement III appended to the Revenue Report of that year those for earlier years are taken from Table No. VIII of the Administration Report, except those in the last column, which are derived from Table I of the same report.

Table No. XV, showing TENURES held direct from Government as they stood in 1888-89.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Karnal.				Panipat.				Kaithal.				Total District.			
Nature of Tenure.	Number of estates.	Number of villages.	Number of holders or share-holders.	Gross area in acres.	Number of estates.	Number of villages.	Number of holders or share-holders.	Gross area in acres.	Number of estates.	Number of villages.	Number of holders or share-holders.	Gross area in acres.	Number of estates.	Number of villages.	Number of holders or share-holders.	Gross area in acres.
Villages held on Zamindári Tenure.																
(1). By one owner ...	28	28	28	24,394	...	...	...	...	7	7	7	4,885	35	35	35	29,279
(2). By several owners ...	32	32	1,642	18,209	25	25	331	22,427	23	23	57	21,944	80	80	2,030	62,580
Villages held on pattidári tenure...	73	73	4,071	64,101	12	12	1,199	12,930	46	46	4,231	79,334	131	131	9,501	156,365
Do. Bhaiachára tenure...	260	260	27,451	428,296	146	143	27,349	260,791	346	346	47,382	711,630	752	749	102,182	1,400,717
Lessees from Government without right of ownership ...	2	2	1	2,351	...	...	...	...	6	6	1	6,940	8	8	2	9,291
Total ...	395	395	33,193	537,351	183	180	28,879	296,148	428	428	51,678	824,733	1,006	1,003	113,750	1,658,232

Note.—These figures are taken from Statement XI appended to the Revenue Report of 1888-89.

Table No. XVI, showing the cultivating occupancy of land in 1888-89.

1			2		3		4		5	
Details.			Karnal.		Panipat.		Kaithal.		Total of the District.	
			Number of Holdings.	Area.	Number of Holdings.	Area.	Number of Holdings.	Area.	Number of Holdings.	Area.
Total area cultivated			59,123	259,875	48,232	176,471	55,656	380,310	163,011	816,659
Area cultivated by owners			27,675	170,090	31,363	144,236	35,579	307,923	94,617	622,249
Area cultivated by Tenants free of rent			2,880	1,539	832	1,040	2,318	3,635	6,030	6,214
Area cultivated by Tenants paying rent.	*With right of occupancy.*	Paying at Revenue rates, with or without Malikána	804	13,145	2,620	3,278	1,813	3,367	5,237	19,790
		Paying other cash rents	717	3,667	432	1,207	310	1,799	1,459	6,673
		Paying in kind with or without an addition in cash	405	1,230	412	904	468	2,312	1,281	4,446
	Without right of occupancy.	Paying at Revenue rates, with or without Malikana	5,412	12,492	10,405	19,642	4,972	16,700	20,789	48,834
		Paying other cash rents ...	8,610	25,600	898	3,672	3,553	15,679	13,061	44,951
		Paying in kind, with or without an addition in cash	12,620	32,112	1,270	2,492	6,647	28,898	20,537	63,502
	Total held by Tenants paying rent ...		28,568	88,246	16,037	31,195	17,759	68,755	62,364	188,196

DETAIL OF RENTS AND AREA ON WHICH PAID.

Details.		Area.		Area.		Area.		Area.	
		Irrigated.	Unirrigated.	Irrigated.	Unirrigated.	Irrigated.	Unirrigated.	Irrigated.	Unirrigated.
Rents in kind ...	1. Zabti rents...	55	1,592	1,732	2,942	1	...	1,788	4,534
	2. Half produce or more	26	688	1,201	2,802	...	99	1,227	3,589
	3. Two-fifths to half	27	1,700	1,102	2,972	...	...	1,129	4,672
	4. One-third to two-fifths	616	12,893	...	...	122	1,124	738	14,017
	5. Less than one-third	991	10,490	1,582	2,845	1,231	26,148	3,804	39,483
	6. By fixed amount of produce ...	71	120	989	2,254	...	...	1,060	2,374
	7. Total area under rents in kind ...	1,786	27,483	6,606	13,815	1,354	27,371	9,746	68,669
Cash rents ...	8. Total area paying cash rent ...	1,948	57,029	4,257	6,517	1,516	38,514	7,721	1,02,060
	9. Total cash rent	2,418	44,972	40,036	10,936	1,542	30,049	43,996	85,957

NOTE.—These figures are taken from Statement XII appended to the Revenue Report of 1888-89, but they appear to be inaccurate as the two parts of the Statements do not agree.

Table No. XVII, AREA and INCOME of GOVERNMENT LANDS for 1888-89.

1	2	3	4	5	6	7	8	9	10
	Area held under cultivating leases.		*Remaining area.*			*Income for year ending 30th September 1889.*			
Total area for Rabi 1888.	Cultivated during the year.	Uncultivated.	Under Forest Department.	Under other Departments.	Under Deputy Commissioner's management.	From leases for cultivation.	Other income.	Total income.	
13,470	...	...	...	...	13,470	...	1,841	1,841	

Table No. XIX, showing LAND ACQUIRED by GOVERNMENT between 1881-82 and 1889-90.

1	2	3	4
Purpose for which acquired.	Area acquired.	Compensation paid in rupees.	Reduction of Revenue in rupees.
Roads	28·98	151	12
Canals, Rajbahás, &c.	1,309·03	27,636	811
Railways	1,411·79	1,23,856	1,163
Miscellaneous (Inspection Houses, Depôt, &c.)	2,049·47	74,222	618
Total	4,799·27	2,25,865	2,604

Table XX, showing ACRES under CROPS.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Years.	Total.	Wheat.	Barley.	Gram.	Vegetables of both harvests.	Tobacco.	Rice.	Maize.	Jowár.	Bajra.	Pulses of both harvests except gram.	Cane.	Cotton.	Indigo.
1873-74 ...	465,691	99,874	33,534	71,002	1,190	1,248	48,591	11,436	94,804	32,547	27,731	11,748	17,268	411
1874-75 ...	465,729	98,275	32,024	72,930	1,585	1,146	49,060	11,900	93,529	32,407	26,645	12,005	19,658	410
1875-76 ...	568,617	125,440	41,334	87,120	1,975	3,210	60,450	10,930	99,090	35,000	42,097	16,400	25,450	410
1876-77 ...	575,642	113,110	29,856	119,935	846	917	53,113	6,215	142,540	31,058	23,033	14,309	21,510	588
1877-78 ...	416,687	122,800	114,473	59,139	1,966	2,062	20,602	2,705	36,272	10,075	9,493	10,217	18,299	379
1878-79 ...	627,384	101,281	77,891	77,545	2,332	1,031	96,052	10,351	166,616	37,436	19,275	15,925	21,769	158
1879-80 ...	593,857	98,275	43,687	52,945	2,806	1,004	105,236	6,618	170,343	53,786	16,844	15,847	21,913	315
1880-81 ...	662,822	112,089	44,486	66,703	4,067	1,406	114,978	10,621	180,680	60,419	20,430	14,704	17,842	791
1881-82 ...	654,117	91,691	39,144	74,970	2,839	2,124	108,026	13,119	174,948	54,022	34,997	17,869	2,2088	1,298
1882-83 ...	647,727	94,796	27,969	88,372	1,555	2,047	58,567	21,766	167,917	51,708	57,853	21,525	29,150	1,127
1883-84 ...	527,934	133,793	29,735	121,339	2,043	1,342	27,613	12,867	80,653	12,950	12,624	11,159	28,640	1,914
1884-85 ...	634,254	132,826	26,190	47,909	2,806	1,401	43,901	17,621	169,747	54,458	37,032	14,967	31,697	4,172
1885-86 ...	697,635	141,987	32,174	104,839	1,410	2,465	60,719	16,584	102,763	27,563	91,228	12,658	35,611	2,344
1886-87 ...	541,018	129,280	15,594	59,289	1,492	1,553	59,326	17,600	55,197	45,064	26,196	8,478	26,939	1,402
1887-88 ...	759,818	145,818	21,406	192,770	1,569	1,232	77,115	17,223	102,488	45,004	34,467	17,371	20,980	3,580
1888-89 ...	810,294	153,326	29,203	213,626	2,111	1,584	53,302	20,798	117,895	38,924	28,290	15,615	30,958	7,787

NOTE.—These figures are taken from Statement No. 44 of Administration Report for first 10 years, from Statement No. 43 of the same for 1883-84 to 1885-86, and from Statement No. 41 of the same for 1886-87 to 1888-89. Before the year 1885-86 the figures relate to the financial year from 1885-86, on wards they relate to the agricultural year, Kharif—Rabi, only the figures for 1888-89 relate to the district as at present constituted (see para. 72).

Table XXI, showing PREVAILING RENTS.

1	2	3	4	5	6	7	8	9	10	11	12
RENT COMMONLY PAID BY TENANTS HOLDING FROM YEAR TO YEAR WITHOUT LEASE OR RIGHT OF OCCUPANCY.											
For land irrigated by Wells.		For land irrigated by Canals.		For land irrigated from other sources than the foregoing.		For alluvial land advantaged by river floods.		For land dependent entirely on rain.			
								Best cultivation.		*Ordinary quality not manured.*	
Cash rent per acre.	Kind rent per cent. of gross produce.	Cash rent per acre.	Kind rent per cent. of gross produce.	Cash rent per acre.	Kind rent per cent. of gross produce.	Cash rent per acre.	Kind rent per cent. of gross produce.	Cash rent per acre.	Kind rent per cent. of gross produce.	Cash rent per acre.	Kind rent per cent. of gross produce.
Rs. a. Rs. a. 7 8 to 1 0	33 to 25	Rs. a. Rs. a. 8 0 to 1 0	33 to 20	Rs. a. Rs. a. 5 0 to 1 8	40 to 25	Rs. a. Rs. a. 4 8 to 1 0	33 to 25	Rs. a. Rs. a. 3 8 to 0 12	25	Rs. a. Rs. a. 2 12 to 0 8	33 to 25

Table XXII, showing NUMBER of STOCK.

Detail.	Cows and Bullocks.	Buffaloes.	Horses and Ponies.	Mules and Donkeys.	Sheep and Goats.	Camels.	Carts.	Ploughs.	Boats.
Total of District	294,853	151,916	5,422	20,677	77,872	1,534	8,782	52,088	19
Pánipat Tahsil	62,400	42,890	1,390	9,817	7,169	139	4,131	14,900	4
Karnál "	108,936	49,612	2,273	5,124	25,743	198	2,887	19,244	13
Kaithal "	123,517	59,414	1,759	5,736	44,960	1,197	1,764	17,944	2

Table No. XXIII, showing OCCUPATIONS of MALES.

1	2	3	4	5	1	2	3	4	5
Number.	Nature of occupations.	*Males above 15 years of age.* Towns.	Villages.	Total.	Number.	Nature of occupations.	*Males above 15 years of age.* Towns.	Villages.	Total.
1	Total population ..	26,357	188,149	214,506	17	Agricultural labourers ..	460	2,611	3,071
2	Occupation specified ..	25,351	187,106	212,457	18	Pastoral ..	224	2,363	2,587
3	Agricultural, whether simple or combined.	6,054	113,021	119,075	19	Cooks and other servants ..	1,179	901	2,080
					20	Water-carriers ..	499	3,401	3,900
4	Civil Administration ..	979	1,775	2,754	21	Sweepers and scavengers ..	642	7,431	8,073
5	Army ..	348	31	379	22	Workers in reed, cane, leaves, straw, &c.	606	295	901
6	Religion ..	514	2,776	3,290					
7	Barbers ..	394	2,671	3,065	23	Workers in leather ..	294	6,474	6,768
8	Other professions ..	406	950	1,356	24	Boot-makers ..	735	4,233	4,968
9	Money-lenders, general traders, pedlars, &c.	642	2,846	3,488	25	Workers in wool and pashm	259	324	583
					26	" " silk ..	64	42	106
10	Dealers in grain and flour ..	1,229	6,277	7,506	27	" " cotton ..	1,653	6,021	7,674
11	Corn-grinders, parchers, &c.	204	642	846	28	" " wood ..	741	2,871	3,612
12	Confectioners, green-grocers, &c.	656	191	846	29	Potters ..	382	3,290	3,672
					30	Workers and dealers in gold and silver. ..	236	882	1,118
13	Carriers and boatmen ..	634	1,620	2,254					
14	Landowners ..	2,816	72,440	75,256	31	Workers in iron ..	204	1,743	1,947
15	Tenants ..	1,664	19,368	21,032	32	General labourers ..	1,963	6,725	8,688
16	Joint-cultivators ..	535	13,824	14,359	33	Beggars, faqirs, and the like	993	6,592	7,585

NOTE.—These figures are taken from Table No. XII A of the Census Report of 1881, and refer to the district as constituted in that year.

Table No. XXIV, showing MANUFACTURES.

1	2	3	4	5	6	7	8	9	10	11
	Silk.	Cotton.	Wool.	Other fabrics	Paper.	Wood.	Iron.	Brass and copper.	Buildings.	Dyeing and manufacturing of dyes.
Number of mills and large factories	..	..	..	..	1	..	..	..	..	..
Number of private looms or small works.	24	2,080	323	101	..	1,687	1,148	44	..	62[illegible]
Number of workmen in large works. Male ..	..	..	..	..	87	..	..	..	..	..
Number of workmen in large works. Female ..	..	..	..	..	..	..	..	..	..	..
Number of workmen in small works or independent artisans.	24	4,629	953	201	..	2,470	2,421	154	997	1,1[illegible]
Value of plant in large works ..	..	..	..	..	6,000	..	..	..	..	..
Estimated annual out-turn of all works in rupees.	9,600	4,99,932	1,14,360	13,668	5,568	3,03,810	2,22,732	38,654	99,700	1,30,5[illegible]

	12	13	14	15	16	17	18	19
	Leather.	Pottery, common and glazed.	Oil-pressing and refining.	Pashmina and Shawls.	Carpets.	Gold, silver, and jewellery.	Other manufactures.	Total.
Number of mills and large factories	..	..	..	..	..	..	..	1
Number of private looms or small works.	374	1,890	785	..	11	599	1,766	11,4[illegible]
Number of workmen in large works. Male ..	..	..	..	..	..	..	..	87
Number of workmen in large works. Female ..	..	..	..	..	..	..	..	..
Number of workmen in small works or independent artisans.	634	3,479	1,129	..	24	1,282	2,828	22,331
Value of plant in large works	..	..	..	..	..	..	..	6,000
Estimated annual out-turn of all works in rupees.	59,596	1,28,723	1,88,545	..	3,216	6,82,024	3,98,748	28,9[illegible]

NOTE.—These figures are taken from the Report on Internal Trade and Manufactures for 1881-82.

Table No. XXVI, showing RETAIL PRICES.

1	2		3		4		5		6		7		8		9		10		11		12		13		14		15		16	
	NUMBER OF SEERS AND CHITANKS PER RUPEE.																													
YEAR.	Wheat.		Barley.		Gram.		Indian corn.		Jowar.		Bajra.		Rice (fine).		Urd dal.		Potatoes.		Cotton (cleaned).		Sugar (refined).		Ghi (Cow's).		Firewood.		Tobacco.		Salt (Lahori).	
	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.	S.	Ch.
1861-62 ..	14	2	20	8	14	8	14	15	15	3	16	7	7	12	15	1	18	10	4	10	2	13	2	2	186	10	4	10	7	12
1862-63 ..	29	1	54	9	29	14	32	10	54	5	32	14	8	8	24	8	18	10	2	15	2	12	2	1	186	10	4	10	8	4
1863-64 ..	14	15	20	8	16	13	28	..	28	..	27	1	14	..	21	..	23	5	4	10	2	5	2	5	186	10	4	10	8	10
1864-65 ..	29	14	37	5	27	1	28	..	32	10	28	..	15	14	22	6	18	10	4	10	2	5	2	9	186	10	5	9	8	14
1865-66 ..	18	4	29	6	27	6	19	13	25	5	19	12	7	4	18	15	18	10	2	..	3	1	1	11	177	4	6	1	7	6
1866-67 ..	19	7	20	14	28	..	18	10	25	5	19	12	7	4	19	7	21	7	2	9	2	12	1	9	177	4	3	14	7	9
1867-68 ..	23	4	26	4	22	8	19	14	21	1	19	7	8	8	17	15	18	10	3	5	2	7	1	8	144	10	5	6	5	15
1868-69 ..	14	4	20	11	17	12	14	14	15	9	16	6	6	12	13	7	26	2	2	1	2	7	1	6	154	14	5	6	5	15
1869-70 ..	10	9	15	5	9	11	18	11	13	1	13	..	5	9	10	11	18	10	1	12	2	9	1	6	158	10	4	3	6	12
1870-71 ..	14	15	24	13	16	1	11	9	23	10	20	1	6	11	18	1	28	..	2	3	2	10	1	5	149	5	5	9	7	10
1871-72 ..	19	..	35	..	19	8	22	..	18	..	20	..	8	..	18	..	16	..	2	9	2	12	1	7	175	..	8	..	8	8
1872-73 ..	22	..	38	...	27	..	30	..	30	..	24	..	10	..	21	..	20	..	3	8	3	8	2	2½	150	..	8	..	8	..
1873-74 ..	19	..	31	..	30	..	30	..	30	..	24	..	10	..	21	..	20	..	3	..	3	4	1	12	175	..	8	..	8	12
1874-75 ..	22	8	36	..	35	8	35	..	27	..	26	..	10	..	24	..	20	..	3	8	3	8	1	15	160	..	8	..	8	8
1875-76 ..	22	..	32	..	34	8	34	..	34	..	34	..	12	..	17	..	20	..	3	..	3	4	1	14	160	..	8	..	8	..
1876-77 ..	25	..	37	..	37	..	34	..	35	..	26	..	10	..	21	..	20	..	3	6	3	8	1	15	160	..	8	..	8	..
1877-78 ..	14	..	18	..	16	8	16	..	15	..	10	..	8	..	10	..	13	5	2	8	3	..	1	11	160	..	8	..	8	8
1878-79 ..	13	..	23	..	17	..	18	..	18	..	17	..	8	..	11	..	13	..	3	..	2	8	1	8	160	..	8	..	9	8
1879-80 ..	15	..	23	4	19	..	23	..	23	..	19	..	11	..	15	..	13	..	3	..	2	8	1	8	160	..	8	..	9	8
1880-81 ..	17	8	29	..	22	..	27	..	27	8	21	..	12	..	19	8	16	..	2	12	2	8	1	8	160	..	8	..	10	8
1881-82 ..	20	..	34	..	26	8	30	..	31	..	25	..	12	..	16	..	20	..	3	6	2	8	1	10	160	..	8	..	10	..
1882-83 ..	20	8	32	..	27	8	28	..	30	..	24	..	12	..	16	..	20	..	4	4	3	..	1	13	140	..	5	..	12	..
1883-84 ..	19	8	29	..	26	..	25	..	25	..	22	..	11	..	13	8	20	..	3	8	3	..	1	12	140	..	5	..	12	..
1884-85 ..	26	..	36	..	32	..	35	..	35	..	27	..	12	..	18	..	16	..	3	4	2	12	1	11	160	..	5	..	11	8

NOTE.—The figures for the first ten years are taken from a statement published by Government (Punjab Government No. 209 S., dated 19th August 1872) and represent the average prices for the 12 months of the year. The figures for the remaining years are taken from the annual statement appended to the Punjab Administration Report and represent prices as they stood on the 1st January of each year.

Table No. XXVII, showing PRICE of LABOUR.

1	2	3	4	5	6	7	8	9	10	11	12	13
Year.	Wages of Labour per day.				Carts per day.		Camels per day.		Donkeys per score per day.		Boats per day.	
	Skilled.		Unskilled.									
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.
1868-69 ..	0 6 0	0 4 0	0 3 0	0 2 0	1 12 0		0 7 0	0 6 0	4 12 0		0 7 0	0 6 0
1873-74 ..	0 8 0	0 4 0	0 3 0	0 1 6	1 12 0		0 8 0	0 4 0	3 12 0	3 9 0	0 7 0	0 5 0
1878-79 ..	0 8 0	0 4 0	0 3 0	0 1 6	1 12 0	0 14 0	0 8 0	0 5 0	3 12 0	3 8 0	0 7 0	0 5 0
1879-80 ..	0 8 0	0 4 0	0 3 0	0 1 6	1 12 0	0 14 0	0 8 0	0 5 0	3 12 0	3 8 0	0 7 0	0 5 0
1880-81 ..	0 8 0	0 4 0	0 3 0	0 1 6	1 12 0	0 14 0	0 8 0	0 5 0	3 12 0	3 8 0	0 7 0	0 5 0
1881-82 ..	0 8 0	0 4 0	0 3 0	0 1 6	1 12 0	0 14 0	0 8 0	0 5 0	3 12 0	3 8 0	0 7 0	0 5 0
1882-83 ..	0 8 0	0 4 0	0 3 0	0 1 6	1 12 0	0 14 0	0 8 0	0 5 0	3 12 0	3 8 0	0 7 0	0 5 0
1883-84 ..	0 8 0	0 6 0	0 3 0	0 1 6	0 14 0	0 12 0	0 8 0	0 5 0	3 12 0	2 12 0	1 0 0	0 14 0
1884-85 ..	0 8 0	0 6 0	0 3 0	0 1 6	0 14 0	0 12 0	0 8 0	0 5 0	3 12 0	2 12 0	1 0 0	0 14 0
1885-86 ..	0 8 0	0 6 0	0 3 0	0 1 6	0 14 0	0 12 0	0 8 0	0 5 0	3 12 0	2 12 0	1 0 0	0 14 0
1886-87 ..	0 8 0	0 6 0	0 3 0	0 1 6	0 14 0	0 12 0	0 8 0	0 5 0	3 12 0	2 12 0	1 0 0	0 14 0
1887-88 ..	0 8 0	0 6 0	0 3 0	0 1 6	0 14 0	0 12 0	0 8 0	0 5 0	3 12 0	2 12 0	1 0 0	0 14 0
1888-89 ..	0 7 0	0 5 4	0 3 0	0 2 6	0 14 0	0 8 0	0 7 0	0 6 0	7 8 0	5 0 0	0 6 6	0 5 6

NOTE.—The figures for 1868-69 to 1882-83, are taken from Table No. 48 of the Administration Report, those for 1883-84 to 1885-86 from Table No. 47, and those for the last three years from Table No. 46. The figures are revised quinquennially.

Table No. XXVIII, showing REVENUE COLLECTED.

1	2	3	4	5	6	7	8	9
Year.	Fixed Land Revenue.	Fluctuating and Miscellaneous Land Revenue.	Tribute.	Local rates.	Excise.		Stamps.	Total Collections.
					Spirits.	Drugs.		
1868-69 ...	6,53,799	2,307	...	...	6,508	8,552	38,814	7,09,980
1869-70 ...	6,50,104	1,529	...	...	4,749	8,441	43,237	7,08,060
1870-71 ...	6,65,232	3,531	...	...	5,314	8,502	40,814	7,23,393
1871-72 ...	6,68,202	3,372	...	54,892	5,377	8,510	42,488	7,82,841
1872-73 ...	6,67,936	2,552	...	54,813	5,403	8,863	42,808	7,82,375
1873-74 ...	6,67,851	2,183	...	54,794	5,230	7,299	44,294	7,81,651
1874-75 ...	6,67,629	3,219	...	54,783	4,149	9,834	38,438	7,78,052
1875-76 ...	6,67,002	2,010	...	54,742	4,341	8,822	44,451	7,81,368
1876-77 ...	6,77,200	2,219	...	55,342	4,254	9,052	41,939	7,90,006
1877-78 ...	6,29,687	1,555	...	52,831	5,559	9,909	46,228	7,45,769
1878-79 ...	5,97,247	27,808	...	68,516	4,500	9,032	53,258	7,60,361
1879-80 ...	6,42,911	2,705	...	65,279	4,024	7,942	57,375	7,80,236
1880-81 ...	5,87,881	47,908	...	61,822	4,517	8,774	53,891	7,64,793
1881-82 ...	5,93,779	16,559	...	63,674	6,614	8,550	60,224	7,49,400
1882-83 ...	5,80,631	2,057	...	70,527	7,748	10,416	49,960	7,21,339
1883-84 ...	5,33,952	4,032	...	71,122	7,073	11,730	52,384	6,80,293
1884-85 ...	5,70,960	1,775	...	91,731	6,608	10,325	49,595	7,30,994
1885-86 ...	6,15,604	2,269	...	85,916	5,614	7,835	50,402	7,67,690
1886-87 ...	5,80,934	2,305	...	87,351	7,362	10,435	50,402	7,38,789
1887-88 ...	5,88,094	14,373	...	92,570	7,777	10,596	48,367	7,61,777
1888-89 ...	6,41,161	16,647	...	99,190	8,532	3,926	48,921	8,18,377

NOTE.—The figures for the last two years are taken from Statement No. XXXIX and those for the other years from Statement No. XLIV of the Administration Report. The following revenue is excluded:—Canal Forest, Customs and Salt, and assessed taxes. The figures for 1888-89 relate to the district as at present constituted.

Table No. XXIX, showing REVENUE DERIVED from LAND.

1	2	3	4	5	6	7	8	9	10	11
		Fluctuating Land Revenue.				Miscellaneous Land Revenue.				
						Grazing dues.				
Year.	Fixed land revenue (Khalsa) demand.	Due to alluvion on lands under fixed assessment.	Waste land assessed.	Fluctuating assessment of Nardak villages.	Total.	By enumeration	By leases.	Sale of wood.	Sajji.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1888-89 ...	6,48,042	22	...	11,826	11,917	...	1,104	...	...	4,730

Table No. XXX, showing ASSIGNED LAND REVENUE in 1890-91.

1	2	3	4	5	6	7	8	9	10
Total Area and Revenue Assigned.									
Village.		Fractional portion of Village.		Plots.		Total.		In perpetuity free of conditions.	
Area.	Jama.	Area.	Jama.	Area.	Jama.	Area.	Jama.	Area.	Jama.
329,458	182,360	22,842	9,901	3,663	16,011	355,963	208,272	343,854	185,754

11	12	13	14	15	16	17	18	19	20
Distribution of Area and Jama.									
In perpetuity subject to conditions.		For life or lives.		At pleasure of Government.		For term of Settlement.		Pending orders of Government.	
Area.	Jama.	Area.	Jama.	Area.	Jama.	Area.	Jama.	Area.	Jama.
5,582	4,350	2,447	1,868	3,744	15,871	336	319	...	110

21	22	23	24	25	26
Number of Holders.					
In perpetuity free of conditions.	In perpetuity subject to conditions.	For life or lives.	At pleasure of Government.	For term of Government.	Pending orders of Government.
3,726	455	161	195	207	2

Table No. XXXI, showing BALANCES, REMISSIONS and TAKAVI.

Year.	Balances of land revenue in rupees. — Fixed revenue.	Balances of land revenue in rupees. — Fluctuating and miscellaneous revenue.	Reductions of fixed demand on account of bad seasons, deterioration, &c., in rupees.	Takavi advances in rupees.
1868-69	13,870	...	...	5,505
1869-70	17,751	...	300	55,611
1870-71	1,977	...	...	1,515
1871-72	437	...	...	1,785
1872-73	1,072	...	...	450
1873-74	544	...	1,005	946
1874-75	337	...	...	475
1875-76	1,295	8	...	900
1876-77	1,578	72	...	130
1877-78	48,907	179	...	1,703
1878-79	62,356	12,706	20	45,264
1879-80	12,096	95	...	21
1880-81	10,218	2,560	...	407
1881-82	499	22	...	300
1882-83	387	156	...	1,900
1883-84	47,436	68	...	3,570
1884-85	34,263	32	...	17,770
1885-86	6,546	5	...	1,160
1886-87	7,531	3	...	1,375
1887-88	6,293	...	...	3,070
1888-89	390	410	...	2,050

NOTE.—The figures are taken from the Statements appended to the Annual Land Revenue Report. Those for last two years refer to the agricultural year Kharif—Rabi.

Table No. XXXII, showing SALES and MORTGAGES of LAND.

1	2	3	4	5	6	7	8	9	10	11
YEAR.	SALES.			MORTGAGES.			REDEMPTION OF MORTGAGE.			Area encumbered with usufructuary mortgages.
	Area.	Revenue.	Purchase-money.	Area.	Revenue.	Mortgage-money.	Area	Revenue.	Mortgage-money.	
	Acres.	Rs.	Rs.	Acres.	Rs.	Rs.	Acres.	Rs.	Rs.	Acres.
1887-88 ..	5,971	1,924	64,335	7,039	2,689	82,182	4,121	2,739	24,509	40,474
1888-89 ..	2,447	2,195	1,01,625	2,742	3,959	91,241	2,461	2,822	50,995	38,552
1889-90 ..	7,350	3,056	93,454	4,533	2,473	49,966	7,144	3,553	57,392	43,025

NOTE.—These figures are taken from Statements X A and XI of Annual Revenue Report.

Table No. XXXIII, showing SALE of STAMPS and REGISTRATION of DEEDS.

1	2	3	4	5	6	7	8	9	10	11	12	13
YEAR.	INCOME FROM SALE OF STAMPS.				OPERATIONS OF THE REGISTRATION DEPARTMENT.							
	Receipts in rupees.		*Net income in rupees.*		*No. of deeds registered.*				*Value of property affected in rupees.*			
	Judicial.	Non-judicial.	Judicial.	Non-judicial.	Touching immovable property.	Touching movable property.	Money obligations.	Total of all kinds.	Immovable property.	Movable property.	Money obligations.	Total value of all kinds.
1885-86 ..	36,624	13,778	32,169	13,286	1,196	66	212	1,534	3,91,672	11,849	64,144	4,69,310
1886-87 ..	33,309	13,114	29,171	12,632	1,197	74	147	1,510	3,94,295	15,448	42,550	4,54,293
1887-88 ..	32,825	13,380	28,741	12,915	1,063	74	110	1,420	3,54,344	16,306	29,446	4,08,096
1888-89 ..	35,060	14,974	32,504	14,432	1,215	39	133	1,574	4,37,548	13,188	44,576	4,99,591

NOTE.—These figures are taken from Appendix A to the Stamp, and Tables II and III of the Registration Report.

Table No. XXXIII A, showing REGISTRATIONS.

1	2	3	4	5	6	7
	Number of Deeds registered.					
	1887-88.			1888-89.		
	Compulsory.	Optional.	Total.	Compulsory.	Optional.	Total.
Registrar, Karnál						
Sub-Registrar, Karnál	161	177	338	147	215	362
Do. Karnal Tahsil	171	46	217	192	83	275
Do. Pánipat	316	224	540	346	183	529
Do. Kaithal	151	170	321	216	192	408
Do. Arnauli	2	2	4	..	..	..
Total of district ..	801	619	1,420	901	673	1,571

NOTE.—These figures are taken from Table No. I of the Registration Report.

Table No. XXXIV, showing LICENSE TAX COLLECTIONS.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
YEAR.	NUMBER OF LICENSES GRANTED IN EACH CLASS AND GRADE.											Total number of licenses.	Total amount of fees.	Number of villages in which licenses granted.
	Class I.				*Class II.*				*Class III.*					
	1 Rs. 500	2 Rs. 200	3 Rs. 150	4 Rs. 100	1 Rs. 75	2 Rs. 50	3 Rs. 25	4 Rs. 10	1 Rs. 5	2 Rs. 2	3 Re. 1			
1878-79 ..	..	..	3	4	3	36	160	600	1,200	2,000	4,962	8,962	27,537	615
1879-80 ..	..	..	..	1	1	24	143	586	1,041	2,046	3,939	7,781	24,046	540
1880-81 ..	..	..	..	1	1	16	137	619	..	..	..	774	10,590	294
1881-82 ..	..	..	..	..	2	17	140	726	..	..	..	885	11,760	220
Tahsil details for 1881-82—														
Tahsil Karnál ..	..	..	..	..	..	6	50	289	..	..	..	345	4,440	51
" Pánipat ..	..	..	..	..	..	2	28	234	..	..	..	264	3,140	53
" Kaithal ..	..	..	..	..	2	9	62	203	..	..	..	276	4,180	42

Table No. XXXV, showing EXCISE STATISTICS.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
YEAR.	FERMENTED LIQUORS.					INTOXICATING DRUGS.						EXCISE REVENUE FROM		
	Number of distilleries.	*No. of Retail Licenses.*		*Consumption in Gallons.*		*No. of Retail Licenses.*		*Consumption in Maunds.*				Fermented liquors.	Drugs.	Total.
		Country spirits.	European liquors.	Rum.	Country spirits.	Opium.	Other drugs.	Opium.	Charas.	Bhang.	Other drugs.			
1885-86 ..	1	9	6	334	1,437	39	40	34	25	80	..	5,614	7,835	[illegible]
1886-87 ..	1	11	7	234	1,584	34	35	41	29	54	..	7,362	10,435	[illegible]
1887-88 ..	1	14	5	331	1,427	33	31	22	30	52	..	7,252	9,700	[illegible]
1888-89 ..	1	14	6	233	1,583	37	35	30	50	40	..	8,855	10,041	[illegible]

NOTE.—These figures are taken from Tables appended to the Excise Report.

Table No. XXXVI, showing DISTRICT FUNDS.

1	2	3	4	5	6	7	8	9	10	11
YEAR.	*Annual Income in Rupees.*			*Annual Expenditure in Rupees.*						
	Provincial rates.	Miscellaneous.	Total income.	Establishment.	District post, and arboriculture.	Education.	Medical.	Miscellaneous.	Public Works.	Total expenditure.
1874-75 ...	...	...	61,391	1,103	2,998	6,058	2,495	...	19,896	32,550
1875-76 ...	...	...	80,427	1,471	174	7,124	4,238	283	45,366	58,656
1876-77 ...	...	...	82,603	1,839	192	9,536	5,410	240	57,169	74,386
1877-78 ...	...	...	76,937	2,345	632	10,577	4,962	240	55,279	74,035
1878-79 ...	...	...	63,108	2,555	944	10,478	5,439	50	34,445	53,911
1879-80 ...	78,260	944	79,204	2,756	871	10,993	5,220	60	25,172	45,072
1880-81 ...	71,173	2,250	73,423	2,838	881	9,634	5,196	60	31,403	50,012
1881-82 ...	75,117	958	76,075	2,807	911	9,570	5,095	287	29,058	47,728

NOTE.—These figures are taken from Appendices A and B to the Annual Review of District Fund Operations.

Table No. XXXVII, showing GOVERNMENT AIDED SCHOOLS.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
YEAR.	HIGH SCHOOLS.						MIDDLE SCHOOLS.						PRIMARY SCHOOLS.							
	ENGLISH.				VERNACULAR.		ENGLISH.				VERNACULAR.		ENGLISH.				VERNACULAR.			
	Government.		*Aided.*		*Government.*		*Government.*		*Aided.*		*Government.*		*Government.*		*Aided.*		*Government.*		*Aided.*	
	Schools.	Scholars.	Schools.	Scholars.	Schools.	Scholars.	Schools.	Scholars.	Schools.	Scholars.	Schools.	Scholars.	Schools.	Scholars.	Schools.	Scholars.	Schools.	Scholars.	Schools.	Scholars.
Figures for Boys.																				
1884-85	...	...	...	...	...	...	2	63	...	...	2	32	2	86	...	...	46	1,958	...	...
1885-86	...	...	...	...	...	...	2	41	...	...	2	29	2	80	...	...	46	2,014	...	...
1886-87	...	...	...	...	...	...	3	124	...	...	2	49	3	161	...	...	54	1,769	...	...
1887-88	...	...	...	...	...	...	3	111	...	...	2	63	3	158	...	...	54	2,153	...	...
1888-89	...	...	...	...	...	...	3	105	...	...	2	44	3	173	...	...	60	2,064	...	...
Figures for Girls.																				
1885-86	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	88
1886-87	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	90
1887-88	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	105
1888-89	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	115
1889-90	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	97

Girls' figures in columns 20–21: Include women taught at their residences.

NOTE.—Both the Zenána Schools have now been closed—the Hindú School in September 1889, and the other (Muhammadan) in May 1890.

Table No. XXXVIII, showing the WORKING of DISPENSARIES.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Name of Dispensary.	Class of Dispensary.	Number of patients treated.														
		Men.					Women.					Children.				
		1877.	1878.	1879.	1880.	1881.	1877.	1878.	1879.	1880.	1881.	1877.	1878.	1879.	1880.	1881.
Karnál	C. H.	4,824	5,967	6,933	6,452	7,117	1,273	1,119	1,807	1,667	1,754	860	669	1,224	925	1,104
Kaithal	1st	4,505	5,544	3,975	4,628	4,499	810	1,404	1,248	1,171	1,215	750	1,390	1,088	837	1,066
Pánipat	2nd	4,900	4,944	6,245	4,679	5,022	1,637	1,506	2,571	1,921	1,833	857	1,002	1,256	831	864
Kunjpura	2nd	2,127	2,436	2,666	2,291	2,748	937	1,125	1,413	1,099	1,435	608	698	815	695	943
Asandh	2nd	1,890	2,458	2,304	2,290	2,177	748	755	935	1,005	887	617	680	674	661	671
Budhlada	2nd	668	3,137	3,126	2,375	2,455	256	1,032	1,101	817	798	115	780	979	716	737
Total ...	...	18,914	24,486	25,249	22,715	24,018	5,661	6,941	9,075	7,680	7,922	3,807	5,219	6,036	4,665	5,385

		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Name of Dispensary.	Class of Dispensary.	Total Patients.					In-door Patients.					Expenditure in Rupees.				
		1877.	1878.	1879.	1880.	1881.	1877.	1878.	1879.	1880.	1881.	1877.	1878.	1879.	1880.	1881.
Karnál	C. H.	6,957	7,755	9,964	9,044	9,975	454	821	444	445	548	2,125	2,603	8,877	2,932	2,077
Kaithal	1st	6,065	8,338	6,311	6,636	6,780	332	355	272	365	448	1,458	1,153	1,354	1,233	7,625
Pánipat	2nd	7,394	7,452	10,072	7,431	7,719	412	409	364	545	502	1,666	1,328	1,245	1,251	1,261
Kunjpura	2nd	3,672	4,259	4,894	4,085	5,126	128	152	181	173	202	1,276	1,255	1,081	1,009	895
Asandh	2nd	3,255	3,893	3,913	3,956	3,735	173	117	153	127	137	1,042	1,104	825	752	854
Budhlada	2nd	1,039	4,949	5,206	3,908	3,990	13	67	84	89	88	4,058	771	878	804	823
Total ...	...	28,382	36,646	40,360	35,060	37,325	1,512	1,921	1,498	1,744	1,925	11,625	8,214	14,260	7,981	13,535

Note.—These figures are taken from Tables Nos. II, IV and V of the Dispensary Report.

Table No. XXXIX, showing CIVIL and REVENUE LITIGATION.

1	2	3	4	5	6	7	8	9
	Number of Civil Suits concerning				*Value in rupees of Suits concerning*			
YEAR.	Money or movable property.	Rent and tenancy rights.	Land and revenue, and other matters.	Total.	* Land.	* Other matters.	* Total.	Number of revenue cases.
1878	3,046	278	367	3,691	15,901	2,50,874	2,66,775	5,432
1879	3,758	459	368	4,585	13,785	3,18,322	3,32,107	10,826
1880	4,038	314	320	4,672	4,28,909	3,02,177	7,31,086	10,823
1881	3,552	180	408	4,140	18,473	4,92,685	5,11,158	6,498
1882	2,897	280	472	3,649	18,910	2,50,624	2,69,534	5,059

NOTE.—These figures are taken from Tables Nos. VI and VII of the Civil Reports for 1878 to 1880, and Nos. II and III of the Reports on Civil Justice for 1881 and 1882.

* Suits heard in Settlement Courts are excluded from these columns, no details of the value of the property being available.

Table No. XL, showing CRIMINAL TRIALS.

1		2	3	4	5	6
DETAILS.		1878.	1879.	1880.	1881.	1882.
Persons tried.	Brought to trial	2,624	2,003	2,051	2,439	2,690
	Discharged	499	575	510	743	939
	Acquitted	395	213	194	156	181
	Convicted	1,714	1,204	1,293	1,546	1,507
	Committed or referred	6	4	29	40	37
Cases disposed of.	Summons cases (regular)	...	...	...	936	920
	" (summary)	...	...	...	3	5
	Warrant cases (regular)	...	...	...	442	486
	" (summary)	...	...	...	2	...
	Total cases disposed of	1,450	1,193	1,199	1,383	1,411
Number of persons sentenced to	Death	1	...	1	2	4
	Transportation for life	2	5	3	3	4
	" for a term	...	...	...	...	...
	Penal servitude	...	...	...	...	...
	Fine under Rs. 10	842	529	611	1,034	848
	" 10 to 50 rupees	253	166	160	118	152
	" 50 to 100 "	11	11	8	14	3
	" 100 to 500 "	12	4	3	...	2
	" 500 to 1,000 "	1	...	...	...	...
	Over 1,000 rupees	1	...	...	...	...
	Imprisonment under 6 months	282	166	178	161	177
	" 6 months to 2 years	249	160	137	93	116
	" over 2 years	23	16	22	20	7
	Whipping	205	112	92	93	31
	Find sureties of the peace	...	...	...	..	8
	Recognisance to keep the peace	75	92	127	61	180
	Give sureties for good behaviour	79	207	192	158	244

NOTE.—These figures are taken from Statements Nos. III and IV of the Criminal Reports for 1878 to 1880, and Nos. IV and V of the Criminal Reports for 1881 and 1882.

Table No. XLI, showing POLICE INQUIRIES.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
NATURE OF OFFENCE.	*Number of cases inquired into.*					*Number of persons arrested or summoned.*					*Number of persons convicted.*				
	1877.	1878.	1879.	1880.	1881.	1877.	1878.	1879.	1880.	1881.	1877.	1878.	1879.	1880.	1881.
Rioting or unlawful assembly	9	9	3	3	8	104	90	23	28	66	82	80	11	19	65
Murder and attempts to murder	4	7	2	6	6	8	17	7	23	15	3	6	6	4	3
Total serious offences against the person ...	49	54	38	34	35	75	91	56	70	62	51	50	32	37	32
Abduction of married women	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total serious offences against property ...	395	256	157	182	115	218	235	101	106	66	136	157	67	58	32
Total minor offences against the person ...	35	11	8	27	24	51	11	13	46	52	47	9	9	24	30
Cattle theft	163	181	84	77	77	146	232	103	82	73	89	166	70	44	32
Total minor offences against property... ...	480	768	400	366	352	474	718	424	355	334	322	517	280	243	189
Total cognizable offences	974	1,107	610	617	536	932	1,155	623	610	582	646	817	404	384	350
Rioting, unlawful assembly, affray	3	1	1	3	1	13	11	2	14	6	7	11	2	7	4
Offences relating to marriage	2	...	3	1	2	1	...	6	2	3	...	...	1	2	1
Total non-cognizable offences	87	46	53	62	99	126	93	86	214	143	79	65	51	122	110
GRAND TOTAL OF OFFENCES	1,061	1,153	663	679	635	1,058	1,248	709	824	725	725	882	455	506	460

NOTE.—These figures are taken from Statement A of the Police Report.

Table No. XLII, showing CONVICTS in GAOL.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
	No. in gaol at beginning of the year.		*No. imprisoned during the year.*		*Religion of convicts.*			*Previous occupation of male convicts.*					
YEAR.	Males.	Females.	Males.	Females.	Musalman.	Hindu.	Buddhist and Jain.	Official.	Professional.	Service.	Agricultural.	Commercial.	Industrial.
1877-78	204	9	514	35	252	510	...	15	...	2	459	...	...
1878-79	236	8	703	54	331	670	...	7	...	31	628	...	...
1879-80	285	18	449	14	66	149	...	3	...	...	127	10	...
1880-81	209	6	378	27	82	155	...	3	4	102	119	...	...
1881-82	227	10	335	36	59	131	...	2	...	71	108	...	...

	15	16	17	18	19	20	21	22	23	24	25	26
	Length of sentence of convicts.							*Previously convicted.*			*Pecuniary results.*	
YEAR.	Under 6 months.	6 months to 1 year.	1 year to 2 years.	2 years to 5 years.	5 years to 10 years.	Over 10 years and transportation.	Death.	Once.	Twice.	More than twice.	Cost of maintenance.	Profits of convict labour.
1877-78	181	268	342	150	32	16	1	41	10	13	12,911	2,361
1878-79	294	236	426	25	15	5	...	42	16	13	15,820	1,016
1879-80	10	26	164	14	1	...	...	20	4	7	13,649	4,090
1880-81	66	55	85	25	5	1	...	29	4	6	12,197	3,253
1881-82	39	41	71	35	2	1	1	19	5	3	11,664	2,759

NOTE.—These figures are taken from Tables Nos. XXVIII, XXIX, XXX, XXXI, and XXXVII of the Administration Report.

Table No. XLIII, showing the POPULATION of TOWNS.

1	2	3	4	5	6	7	8	9	10
Tahsíl.	Town.	Total population.	Hindús.	Sikhs.	Jains.	Musalmáns.	Other religions.	No. of occupied houses.	Persons per 100 occupied houses.
Karnál ...	Karnál ...	23,133	15,215	110	213	7,550	45	3,679	629
	Kunjpura ...	4,725	2,174	...	1	2,550	...	879	538
Pánipat ...	Pánipat ...	25,022	7,334	1	768	16,917	2	2,952	848
Kaithal ...	Kaithal ...	14,754	8,597	171	134	5,852	...	2,302	641
	Sewan ...	5,717	3,252	11	...	2,454	...	287	1,992
	Pundri ...	4,977	3,343	3	1	1,630	...	342	1,458

NOTE.—These figures are taken from Table No. XX of the Census Report of 1881.

Table No. XLIV, showing BIRTHS and DEATHS for TOWNS.

1	2	3	4	5	6	7	8	9	10	11	12	13
Town.	Sex.	Total population by the Census of	Total births registered during the year.					Total deaths registered during the year.				
		1875.	1877.	1878.	1879.	1880.	1881.	1877.	1878.	1879.	1880.	1881.
Karnál ...	Males ...	12,695	430	464	334	312	447	525	825	1,085	608	566
	Females	11,320	414	394	279	242	371	462	779	1,020	475	510
Kaithal ...	Males ...	8,048	282	200	104	130	185	146	400	263	182	183
	Females	7,751	252	148	74	119	151	142	403	288	165	165
Pánipat ...	Males ..	12,469	575	500	393	411	581	405	486	583	403	504
	Females	12,031	532	445	319	421	522	390	430	553	345	447

Note.—These figures are taken from Table No. LVII of the Administration Report.

Table No. XLV, showing MUNICIPAL INCOME.

1	2	3	4	5	6
Name of Municipality.	Karnál.	Pánipat.	Kaithal.	Pundri.	Kunjpura.
Class of Municipality ...	II.	III.	III.	III.	III.
1870-71	16,270	12,421	7,854	1,668	971
1871-72	13,527	8,882	8,433	1,116	937
1872-73	14,245	10,013	5,238	1,184	1,177
1873-74	11,686	9,925	8,603	1,403	1,125
1874-75	15,765	11,468	6,533	1,200	1,437
1875-76	15,324	9,352	7,560	1,426	1,500
1876-77	16,502	10,810	8,155	1,124	1,636
1877-78	16,460	10,027	8,486	1,360	1,643
1878-79	15,694	14,344	8,809	1,285	1,516
1879-80	18,078	19,209	11,406	2,148	1,701
1880-81	18,912	21,370	13,663	2,018	1,720
1881-82	19,081	20,895	14,179	2,313	1,903

Table No. XLVI, showing DISTANCES.

Kárnal*	Kárnal.																												
Gharaunda†	11	Gharaunda.																											
Pánipat*	21	10	Pánipat.																										
Sambhalka†	32	22	11	Sambhalka.																									
Naisang†	15	26	28	39	Naisang.																								
Pundri†	29	40	42	53	14	Pundri.																							
Kaithal*	39	50	50	61	24	10	Kaithal.																						
Siwan	45	56	56	67	30	16	6	Siwan.																					
Chika	57	67	68	79	42	28	18	12	Chika.																				
Arnauli	67	78	78	89	52	38	28	22	10	Arnauli.																			
Sidhowal	82	93	93	104	67	53	43	37	25	15	Sidhowal.																		
Deoband	46	54	44	55	22	11	8	14	26	36	51	Deoband.																	
Rajaund†	35	35	35	46	21	14	17	23	35	45	60	9	Rajaund.																
Asandh†	28	26	27	38	20	19	24	30	42	52	67	16	7	Asandh.															
Salwan	21	17	17	28	15	23	31	37	49	59	74	22	14	7	Salwan.														
Rer Bridge	17	8	9	20	15	25	37	43	55	65	80	31	23	14	9	Rer Bridge.													
Butana†	11	22	32	43	15	23	33	39	38	39	54	47	43	39	32	28	Butana.												
Kunjpura	6	17	27	38	21	35	45	51	53	58	88	52	41	34	27	23	17	Kunjpura.											
Indri†	13	24	34	45	28	42	52	58	70	80	95	59	48	41	34	30	7	10	Indri.										
Alupur†	34	23	13	15	27	37	49	55	67	77	92	43	33	26	21	12	45	40	47	Alupur.									
Gula†	56	67	67	78	41	27	17	11	3	12	26	25	34	41	45	54	50	62	69	66	Gula.								
Mirghan‡	6	10	20	31	20	35	45	51	63	73	88	52	41	34	27	22	14	6	17	33	62	Mirghan.							
Sanauli‡	31	20	10	17	35	48	60	66	78	88	103	54	45	37	27	19	42	27	38	23	77	18	Sanauli.						
Chaugaon‡	23	34	44	55	38	43	53	59	71	81	96	53	59	51	44	40	17	18	10	57	70	24	42	Chaugaon.					
Kalsaura‡	17	26	36	47	32	46	56	62	74	84	99	63	53	45	38	34	12	10	5	51	73	16	35	6	Kalsaura.				
Dabkauli‡	12	23	33	44	27	41	51	57	69	79	94	58	48	40	33	29	14	7	7	46	68	13	33	10	4	Dabkauli.			
Begi‡	10	21	31	42	15	39	49	55	67	77	92	56	46	38	31	27	21	5	10	44	66	10	28	14	8	4	Begi.		
Khojgipur‡	36	25	15	7	43	51	65	71	83	93	118	59	50	42	32	24	47	32	49	28	82	28	9	51	45	42	33	Khojgipur.	
Pehowa	38	49	59	70	40	26	16	22	17	27	42	24	33	40	47	53	27	44	34	72	20	44	69	44	39	41	44	74	Pehowa.

REFERENCE:

The initial measurement is from the Kachehri of Kárnal.

Tahsil *
Police Station †
Ferries ‡

APPENDIX.

Growth of irrigation from the Western Jamna Canal, and extension of saline efflorescence and swamp.

Appendix.

Growth of irrigation.

The figures below show the irrigation from the *whole* of the Western Jamna Canal, from 1819 to 1840, no separate figures being available for the district. The Dehli Branch was opened in 1820, but the small supply of water carried by it may be estimated from the fact that till 1826, *at least*, no bridges were needed, as a loaded village cart could be driven through it without inconvenience. In 1826 the Rohtak Branch was opened as far as Gohána; but the irrigation from both these canals, though steadily increasing up to 1833, was still very limited, and in 1831 the small use made of the water was attributed to "the uncertainty of the supply, the insufficiency of the outlets permitted for each village, and the high rates charged" *viz.*, As. 11-2 per acre.

Early Irrigation from Western Jamna Canal.

Year.	Amount of water-rate in rupees.	Area calculated at average rate of As. 11-2 per acre.	Remarks.
1819-20 ...	876	1,255	Main Line and Dehli Branch opened.
1820-21 ...	14,646	20,988	
1821-22 ...	24,619	35,279	
1822-23 ...	21,458	30,749	
1823-24 ...	36,015	51,609	Drought.
1824-25 ...	26,647	38,185	Famine.
1825-26 ...	48,374	69,320	
1826-27 ...	33,975	48,686	Rohtak Branch opened.
1827-28 ...	34,161	48,953	
1828-29 ...	52,953	75,882	
1829-30 ...	53,375	76,486	
1830-31 ...	57,700	82,684	
1831-32 ...	51,016	73,106	
1832-33 ...	65,805	94,299	
1833-34 ...	1,48,783	2,13,206	Famine.
1834-35 ...	1,14,065	1,63,455	
1835-36 ...	1,10,603	1,58,494	
1836-37 ...	1,53,177	2,19,503	
1837-38 ...	2,72,378	3,90,318	Drought.
1838-39 ...	1,89,645	2,71,761	
1839-40 ...	2,24,383	3,21,541	Rain scanty.
1840-41 ...	2,55,818	3,66,587	Contract system introduced.
1841-42 ...	2,63,069	3,76,978	
1842-43 ...	2,79,300	4,00,237	

Appendix.

Growth of irrigation.

The terrible famine of 1833-34 gave a new turn to the irrigation question. This famine fell with perhaps even greater severity upon the Bángar than upon the Khádar; for the canal failed, while the people of the latter had at least their wells, so long as the cattle had strength to work them. The distress, feebly described at page 23, paralysed for a whole year the agriculture of the tract. But this very distress was the means of securing at one bound an advance in prosperity which might otherwise have taken many years to attain. The canal presented at least a possibility of salvation; and its officers had no longer reason to complain that the water they proffered was not accepted. Irrigating villages enlarged and multiplied their channels; numerous other villages which had never before irrigated dug cuts for themselves, often many miles in length; and the area irrigated was limited only by the means of supply, instead of, as heretofore, by the demand. Strenuous efforts were made to increase that supply; and the irrigation of 1833-34 was 2¼ times that of 1832-33, while the construction of the Butána Branch extended the water to a part of the tract which it had previously been unable to reach. The means of irrigation, once called into existence by the pressure of a water-famine, were still available when the urgent necessity had passed away; and the irrigation never again fell to its former level. The failure of the rains in 1836-37 raised it above the figures of 1832-33, and the continuance of the drought caused the irrigation in 1837-38 to rise to what Captain Baker, the Superintendent of Canals, declared in 1841 to be the maximum capacity of the channels as they then stood. But the supply was still uncertain, and apt to fail when most needed. The whole system of canals and their subsidiary channels had been called on to perform a task far in excess of that for which they had been designed; the call had been urgent, and the necessary adaptations had been made as best they could, and on the spur of the moment. The arrangements at the heads for supplying the water from the river were also very imperfect; and too often the canal broke down just when there was the greatest need for its services.

Year.	Acres.
1876	69,744
1877	85,172
1878	123,567
1879	97,334
1880	77,027
1881	62,280
1882	69,483
1883	87,035

The table on the opposite page shows the irrigation between 1865 and 1875. The figures refer only to the portion of the district settled by Mr. Ibbetson; but the canal irrigation excluded is insignificant in amount. Since that date the area charged with water-rate in the Karnál District has been as shown in the margin.

Defect of the canal system.

When the canal was re-opened, every facility was offered to such villages as would make use of the water. In most cases an old imperial water-cut still existed, which they were allowed to clear out and use; and when there was none, they simply made themselves a channel straight from the nearest point on the canal from which

Appendix.

Growth of irrigation.

		Year.	Cotton.	Sugar-cane.	Rice.	*Jowar.*	Wheat.	Gram.	Barley.	Barley and Gram.	Miscellaneous and fodder.	*Paleo* and *Sailabi.*	Total area.
KARNAL BANGAR.	Canal areas.	1865 ...	1,393	533	7,455	651	6,257	674	993	46	756	4,045	22,839
		1866 ...	2,192	180	7,652	456	8,964	784	371	1,657	1,015	3,769	27,333
		1867 ...	1,812	98	6,003	16	6,489	448	302	1,436	509	1,042	18,211
		1868 ...	2,518	320	6,788	2,240	13,052	606	2,723	677	2,590	1,360	33,081
		1869 ...	3,016	665	9,163	1,334	9,063	570	2,232	825	1,539	2,236	30,904
		1870 ...	3,786	315	9,097	231	9,080	645	2,492	1,226	2,515	987	30,776
		1871 ...	1,633	179	6,621	82	9,841	1,001	1,623	276	1,872	792	24,004
		1872 ...	2,982	543	5,581	108	5,970	302	416	744	983	4,000	21,780
		1873 ...	1,123	492	7,145	74	5,453	159	619	274	963	4,638	20,985
		1874 ...	...	...	...	...	...	...	...	...	...	...	20,822
		1875 ...	...	...	...	...	...	...	...	...	...	...	19,368
		Average ...	2,273	370	7,278	577	8,241	610	1,308	795	1,416	2,541	24,555
PANIPAT BANGAR.	Canal areas.	1865 ...	7,899	4,296	10,449	4,658	22,217	1,201	494	4,714	2,099	5,446	63,473
		1866 ...	12,171	2,048	12,390	1,450	28,573	921	439	4,254	3,495	6,154	71,916
		1867 ...	11,467	2,853	8,325	448	20,339	1,531	436	3,118	2,893	1,757	53,174
		1868 ...	9,441	5,185	7,367	7,796	36,339	2,021	2,665	2,256	6,587	948	80,683
		1869 ...	11,121	7,129	8,048	7,773	27,834	2,563	1,726	3,166	6,148	1,842	77,431
		1870 ...	13,296	5,564	8,768	2,175	26,653	1,902	1,746	2,263	6,253	1,273	70,023
		1871 ...	12,474	4,322	7,225	666	26,413	1,636	1,682	3,768	6,096	868	65,450
		1872 ...	9,519	5,234	9,390	388	11,628	353	488	1,869	4,044	4,512	47,449
		1873 ...	4,790	5,355	8,651	466	9,024	224	407	811	4,407	5,177	39,378
		1874 ...	...	...	...	...	...	...	...	...	...	...	48,189
		1875 ...	...	...	...	...	...	...	...	...	...	...	41,669
		Average ...	10,242	4,665	8,957	2,869	23,224	1,373	1,121	2,913	4,669	3,108	59,894

Appendix.

Growth of irrigation.

Defects of the canal system.

water would flow to their fields. As the demand for water has extended, certain large distributaries have been constructed, which have absorbed many of the early channels, while others have been deepened, enlarged and extended. The main canals, too, have been deepened and their banks raised, till the water touches the crown of the arches in the bridges. Most of these extensions were made under pressure of urgent need, and therefore without interrupting the supply, and too hurriedly to admit of due consideration being given to them, or of the best possible scheme being selected. Thus, while the faulty alignment of the old canal and channels is still followed, their carrying capacity has been so increased that in most parts the surface level of the water, and in some places the bed of the canal, is above the surrounding country, and the water is thus forced into the sub-soil by hydraulic pressure.* A great deal of the canal is, of course, in embankment; and in many of the secondary channels silt clearances, often dating from the time of the Mughals, have raised the banks to a height of 12 and 15 feet; and this system of embankments has been constructed with so little reference to the natural drainage that it intersects all the drainage lines of the tract, and throws back the surface water over the surrounding country. This is especially the case in Karnál Bángar, where the canal runs in embankment below the Nardak step in the Bángar, and the Khádar bank in the Khádar, and holds up all the drainage which runs southwards from the highlands. The highland distributaries which cross the lowland to reach the villages on the crown of the slopes, act as so many dams above which huge swamps form, while the poops of the old channel in which the canal used to run, and which are cut off by it now that it has been straightened, act as breeding beds for crocodiles and malaria.

Excessive irrigation practised by the people.

But if the defects of the means of supply have given rise to evils, the pernicious system of irrigation pursued by the people, coupled with its rapid extension has increased those evils a hundred fold. While some 8 per cent. of the central canal tract is permanently under water, 40 per cent. of the whole area and 80 per cent. of the cultivated area is irrigated, much of it twice in the year, much of it for rice cultivation, and almost all of it every year without intermission. Now canal irrigation is not like well irrigation. When every drop of water used is represented by additional labour to man and

* The total irrigation from Western Jamna Canal at various periods is shown below:—

Years.	*Acres.*
1820	155
1825	38,185
1830	76,486
1840	321,541
1870	496,542
1878	507,974

The average depths of water in feet at Karnál bridge at various periods is as follows:—

Years.	*Feet.*
1827	4·81
1830	5·20
1835	6·93
1870	9·81
1875	10·10

And the bottom from which these depths are measured has been raised considerably during the period over which these figures extend.

Appendix.

Growth of irrigation.

Excessive irrigation practised by the people.

beast, the greatest economy is exercised; not so when a stroke of the spade is sufficient to set flowing an unlimited supply. In the former case the cultivator divides his fields into small beds which are irrigated successively, and practically answer the purpose of terraces economising the water, not only by reducing the depth needed, but also by confining the area of already watered ground over which the water has to pass. On the canal, on the other hand, if a field is six inches lower at one end than at the other, a seven-inch bank is made round it, and the whole field put under an average of four inches of water, in order to get one inch at the top; each spot in the field, after receiving its water, is still passed over by the water which goes to spots beyond it; and if a leak occurs in the channel, or if a bullock breaks down the side, the water is allowed to run to waste for hours before any trouble is taken to remedy the evil. The duty of the canal-water for 1874-75 was 74 acres in the autumn, and 89 in the spring per cubic foot of supply. Supposing that the loss by evaporation and waste is counterbalanced by the fact that much of this land is watered in both seasons, this represents a supply of 62 inches in the year. A well working 13 hours a day for 150 days in the spring and 80 days in the autumn, and watering 15 acres, would have to supply at this rate 6,067 gallons per hour. Morever, the well water is itself drawn from the subsoil supply, and all that is lost by evaporation during the process of irrigation is so much lost to that supply; while in canal irrigation, all that is *not* so lost, is so much *added* to that supply.

Resulting swamps.

The result is that the whole country is water-logged by the canal-water being forced into it from below, while the cultivator drenches it from above. And when the rain comes in tropical abundance, instead of finding a thirsty soil ready to drink up the greater part, it falls upon a country already saturated with water, and the whole volume is thrown into shallow drainage lines with an almost imperceptible slope. These again, being barred at intervals by high banks crossing them at right angles, silt up, and the water is thrown back and covers the country for miles. Thus, when the rainfall has been unusually heavy for several years in succession, there are hundreds of acres in which the autumn crop, if it can be sown at all, is almost or altogether drowned; while such little land as appears above the water soon enough to plough for the spring crop is so moist that the yield is barely worth the trouble of gathering. And there is a still larger area in which, after heavy rain, the water stands some inches deep for three or four days at a time, to the great injury of the crop. No means exist of carrying off the water, for, as the Chief Engineer reported in 1867, "the level of the water in the "canal can very seldom be reduced in the rainy season, just "when the drainage of the swamps is most needed; as even if "the supply at the heads be shut off, the quantity of water "draining into the channel above Karnál is sufficient and some-"times more than sufficient, to fill the channel at and below, "that point."

Appendix.

Growth of irrigation.

Resulting saline efflorescence.

Nor is it only swampage that results from the causes above mentioned; for if it were higher land might be cultivated as the lower became unculturable. For countless ages the rain falling upon the soil has washed down with it more or less of its saline constituents into the spring water below. That water now has been raised to within such a short distance of the surface that it can rise to it by capillary attraction, carrying with it salts which have been thus accumulated. As fast as it reaches the surface, wherever the cultivation or the shade of a thick tree does not interfere with radition and evaporation, the fierce heat of an Indian sun concentrates the solution. Where the water is so near the surface, and the surface moisture so great that diffusion can take place, and the water thus made heavier can return by the way it came, no great harm is done. But over most of the area this is not the case, and the water evaporating leaves the salt deposited; and this process, repeated year after year, eventually covers the soil with a flocculent layer of alkaline salts, lying like fresh-fallen snow, often three or four inches thick. The first rain that falls is not heavy enough to reach the main drainages, and sinking in *in situ* carries with it the salts; thus preserving them by a sort of occlusion from the mechanical action of heavy rain, to reappear when the next sunny day restores the process of evaporation.*

The salts lie thick round the edges of the cultivation, and, notwithstanding the bank made to keep them out, are carried over the boundary by the wind and rain and deposited in the hollows of the out-lying fields. When once cultivation is thus destroyed, the capillary process immediately begins, and thus the evil is gradually eating its way from outside into the still fertile fields, every inch gained being made the stepping-stone for further inroads. The saline water and such grass as is able to spring up in the salt-impregnated land give the cattle diarrhœa and glandular affections, enfeeble, and eventually kill them; while the large area which is each year covered with water and aquatic plants in the rainy season, and dried up by the sun during the remainder of the year, exhales from its putrefying vegetation a malaria which poisons the blood of the villagers, renders them impotent, and kills them by fever and spleen disease.

Effects upon health and prosperity.

The epidemic of 1841-43, which assumed special virulence in the canal tract, and caused the abandonment of Karnál as a cantonment, led to the appointment of a Committee by the Supreme Government to investigate the matter. Their report was published at Agrá in 1847. In 1867 Surgeon-Major Adam

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* An immense amount of information and discussion on the subject of *reh*, its origin, formation, effects and cure, will be found in the report of the Aligarh Reh Committee of 1878, in Selections No. XLII (1864) from Government of India correspondence, P. W. D., and in the printed correspondence with Board of Revenue, N.-W. P., No. 231 of 21st October 1874, and Government, N.-W. P. Revenue Department, Index Nos. 61—83 of May 1877.

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Effects upon health and prosperity.

Taylor was appointed to make a further inquiry; and his report was published as Selection No. VI of 1870 from Records of Government Punjab. Some of the figures of both reports are summarised in the Table given below.

Dr. Taylor shows that 60 to 80 per cent. of the inhabitants in *many* of the Bángar villages were suffering from enlarged spleen and yearly attacks of fever. He speaks of the "languor and depression of manner, and stunted and shrivelled forms of the inhabitants of the villages in close proximity" to the swamps; and of the absence of "the strength to repair damages or to preserve comfort." The heavy rains of 1871-76 rendered the sanitary condition of the canal villages worse than ever.

In 1856 the people of many of the worst villages abandoned their homes and fled to Jínd; and Mr. Sherer was deputed to inspect the tract. His admirable report was submitted in 1857, and is printed as part of Selections No. XLII (1864) from Government of India correspondence, P. W. D., pages 4—15. He showed that the water-level had been raised by the canal from some 60 feet to, in many places, two or three feet from the surface; that the fertility of the soil had been very generally diminished; and that the evil had not nearly reached its limits, but must necessarily continue to spread almost indefinitely.

Statistics of Disease on Western Jamna Canal.

Locality.	Distance from Canal.	Depth of water below surface.	Percentage of large spleens.	Percentage suffering from fever in		
				1844.	1845.	1864.
REPORT OF 1847.						
Western Jamna Canal.						
Dehli Branch ...	Within half a mile...	11	58	51	45	41
	More than a mile ...	18	49	51	49	40
Rohtak Branch ...	Within half a mile ...	28	44	47	38	27
	More than a mile ...	48	29	34	34	27
Butána Branch ...	More than half a mile	102	16	41	36	22
Non-Canal Villages.						
Dehli territory ...	...	88	11	32	28	11
High Doáb ...	...	24	8	37	31	20
REPORT OF 1867.						
Dehli Branch ...	Within half a mile...	6	61	33	20	63
	More than a mile ...	11	44	40	38	66
Rohtak Branch ...	Within half a mile...	5	41	36	36	51
	More than a mile ...	7	47	44	54	68
Butána Branch ...	More than half a mile	45	7	33	28	32
Between the Canals	...	8	47	34	41	65

Appendix.

Growth of irrigation.

Effects upon health and prosperity.

From a sanitary point of view he found a state of things existing "very much worse than that described by the Committee of 1847." He speaks of the miserable disease engendered by the tainted water and malarious exhalations of the soil; of the spectacle of sick women and diseased children crouching among the ruins of their houses (for in many cases the rafters had been sold), of haggard cultivators wading in the swamps, and watching their sickly crops, or attempting to pasture their bony cattle on the unwholesome grass.

Present condition.

In the beginning of 1877 Mr. Ibbetson, reporting on the assessment of the canal tract, wrote as follows:—

"The villages of the tract may be described under three heads. Those which, well removed above the influence of the *reh*, reap the benefits of the canal without being subject to its injuries, are eminently prosperous.

"Those villages, which, though out of the lines of drainage and swamp, are so low that their pastures are covered by *reh*, are far less prosperous. Their cultivation has decreased, and must decrease still further; the fertility of what remains has diminished; expansion is impossible; what little grass there is for the cattle weakens and kills them, and the water is bad for both man and beast. Where the village is large and well off, they have saved the mass of their cultivation from any very great deterioration, and the inroads of *rèh* are chiefly confined to the edges. But where the community is poor, the whole cultivation has suffered, and the *reh* advances with accelerating impetus. It is, then, most important to assess lightly this class of villages, so that they may not be hampered in their struggle with the evil.

"As for the villages which lie in the drainage lines, or have low land near the canal, their state is pitiful indeed. Their early cultivation was, as is the case throughout the district, in the lowest parts of their area; and while the higher lands were becoming covered with *reh*, the stiff soil of the fields helped to preserve the lower from injury. But as the water-level rose, and swamps and soakage began to extend, they found their cultivation under water, while, turning too late to their high lands they perceived that they had become barren; and now they live a semi-amphibious life, their houses crumbling with the damp, crocodiles in their village ponds, the water in the wells so near that, as they say, they can 'draw water without a string,' their sickly feeble cattle obliged to leave the village during the rains, and they themselves suffering from all complications of malarious disease with an unbroken regularity. Year by year they sow rice with the certainty that only an exceptionally dry season can save it from being drowned, and that much of it must even then be injured by too much water; year by

Appendix.

Growth of irrigation.

Present condition.

year they watch the fields as they dry up, and rapidly passing a plough through the tenancious mud, sow their wheat and barley in the open furrows, till the very last moment when there is hope of their germinating, or even sow the seed on the unbroken mud, and plough over it when the ground is a little drier; and this in the knowledge that some of it will fail, that heavy rain will drown more of it, and that most of what does come up will barely repay the labour spent on it. Much of their land is sour and cold from being so permanently saturated with water that, though not under water, it cannot be cultivated; some of it perhaps is separated from their village by the canal, the nearest bridge being some miles off, and it being forbidden to take cattle to it along the bank. In a year of drought these villages no doubt reap splendid crops, but years of drought are fortunately the exception, and I think that the very largest allowance should be made for the circumstances of estates so situated.

"My experience of the tract was then limited to a probably exceptional series of seasons of full or excessive rainfall. Since then I have seen them during a series of, I hope, exceptionally scanty rain, and I think I exaggerated the *average* condition of the swampy villages. It would be difficult to exaggerate it as it is in really wet years."

General Strachey did not speak one whit too strongly, when he said in 1867 :—

"The portion of the canal near Karnál is a disgrace to our administration, and has been for years past. It creates most pestilential swamps which must be got rid of, unless we are content to perpetuate this abominable nuisance, which has been talked about for the last 25 years, during which period no serious attempt has been made to abate it. For my own part, I distinctly reject all share in any counsel which tends to delay in meeting this most crying evil. I most fully admit the great importance of doing what has to be done with the most scrupulous regard to economy, and I am ready to sacrifice all thought of elegance or congruity for the purpose of avoiding any considerable outlay, which is really not needed to secure efficiency. But it is impossible for me to affirm, with too great positiveness, the moral obligation which rests on our Government to put an end, with all possible speed, to the discreditable condition of the large tracts of land along the Western Jamna Canal, which are converted into swamps of the most pestilential nature, not only destructive to the health and life of the population, but occupying in a manner far worse than useless some of what might be the very best lands. It will be necessary to do something, and what is necessary should not be delayed till other works, which have no relation to this part of the scheme, are completed."

Appendix.

Growth of irrigation.

Present condition.

The new canal is now nearly complete; the re-alignment of the distributaries has already done much good, and the completion of the drainage scheme will doubtless go far to cure the evil of swamps. But the efflorescence will not be so easily got rid of; and it will, probably, be many years before this scourge is very materially decreased.

The above was written by Mr. Ibbetson eight or nine years ago. The following note by Mr. Higham, Superintending Engineer, Cis-Sutlej Division, shows what has been done to remedy the evils to which Mr. Ibbetson referred.

The new main line of the Western Jamna Canal, extending from Indri to Munak, was completed in 1885, and in August of that year the old canal between Indri and Rei was finally closed, and relegated to its proper position as a drainage line. The re-alignment of the distributaries has been since completed, and the obstructions to the free passage of the drainage caused by the old water-courses have been finally removed. Lastly the Karnál District has been provided with three main or arterial drains, two of which have been in full working order since 1887, though the third is not yet fully developed. The first of these, known as Main Drain No. I, comprises a length of the old canal from Budha Khera to Kharakali. The outfall channel leaves the old canal opposite Karnál in a north-easterly direction falling into the Budha Khera Escape of the Western Jamna Canal at Kutel, and thence passing onwards into the Jamna. Three minor tributary drains discharging into this main drain unwater the Karnál City and neighbourhood and the Bazida Jhil, and completes the drainage of the great bight of the Khadir lying between the Bángar edge and the old canal, the whole condition of which has very materially improved since its construction. Main Drain No. II comprises a further length of the old canal from Kharakali to Rei, which drains the adjacent Bángar villages. From Kutana the drain is connected by an artificial cut with the old Rei Escape, which has been enlarged and remodelled as far as Babail, four miles to the east of the Grand Trunk Road. From Babail the new drain leaves the line of the Rei Escape by a sharp turn to the south and eventually discharges into an old nallah below Chajpur, and so on into the Jamna at Khojkipur, 12 miles below Pánipat. This drain passes into the Khadir at Mahomedpur, and receives the waters of the Ganda Nallah, or natural main line of the Khadir immediately above the point of crossing the Grand Trunk Road. Several other inlets are provided along its course both in the Bángar and Khadir for the drainage of adjacent lands, while at its lower end the spoil on the left or eastern bank efficiently protects several villages from the overspill of the Jamna.

The third arterial drain, known as Main Drain No. III, or the Nai Nallah, will drain the lands to the west of the new main line and New Hansi Branch until it passes under the latter at Antu, a short distance above Sufidan, in Jind territory.

Appendix

Growth of irrigation.

Present condition.

Below this point it unwaters the tract lying between the New Dehli Branch and the old Rohtak Canal, and constitutes a natural drainage line, which passes into the Rohtak District at Chichiana (when it is locally known as the Loti Nallah) running in a southerly direction through Gohána and to the west of Rohtak, with an ultimate outfall into the lakes north of Jhajjar, which communicate with the great Najafgarh Jhil in the south of the Dehli District. Until recently however the outfall below Gohána was completely closed, and the efficiency of the Nai Nallah as a drainage line was limited by the capacity of the Rohta Jhil above that town. By the completion of Main Drain No. VIII below Gohána an efficient outfall has now been provided and the clearance of the upper part of the nallah and of a few subsidiary drainages alone remains to complete this third and important main drain, and with it the drainage scheme for the canal irrigated portions of the Karnál District.

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